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Dumping Syndrome

Recent Changes in Concept of This Common, Distressing, and Hence Important, Postgastrectomy Development

J. WALKER BUTIN, M.D., *Wichita*

Until recent years the only objectives of surgical therapy of the complicated duodenal ulcer have been control of the complication itself and prevention of recurrence of the ulceration. Traditionally, these objectives have been accomplished by removal of the "acid factory," the distal two-thirds or more of the stomach with its secretory mechanism, and have included sacrifice of the pyloric sphincter. Such obliteration of the digestive function of the stomach, however, has also entailed loss of its function as a reservoir. Thus the gastric remnant or "pouch" becomes little more than a prolongation of the esophagus, representing a further passageway for food on its journey from the mouth to the major absorbing surfaces of the small intestine. Ingested foods and liquids are seldom isotonic with body fluids, and their rapid introduction into the small intestine has been associated with a chain of undesirable symptoms. These have been designated the postgastrectomy "dumping" syndrome, and avoidance of this not infrequent sequel of gastrectomy is fast becoming a third major consideration when such surgery is contemplated.

The medical literature of the last ten years abounds in references to the dumping syndrome. Researches in many centers have revealed new aspects of its pathogenesis and treatment. My reason for adding to the writings on this subject has stemmed from a unique opportunity to observe personally the syndrome following the partial resection of my own stomach. These personal observations and those of a group of 53 patients have led to the following conclusions:

1. The dumping syndrome is quite common after gastric surgery involving removal of the pylorus.
2. The syndrome results from definite physiologic phenomena which are experimentally reproducible in individuals having intact stomachs as well as those with previous gastric surgery.
3. The treatment of the syndrome can be successful if based on physiologic principles derived from its pathogenesis.

Definition of Syndrome

Symptoms following gastrectomy are divided into two main groups depending on the time of their occurrence after meals. These are (a) early symptoms, occurring within the first 15 to 30 minutes after eating (and with which this paper will dwell), and (b) late symptoms, occurring 2 to 3 hours after meals

Gastric surgery which by-passes or sacrifices the pylorus commonly produces a chain of uncomfortable symptoms which occur shortly after meals. The most attractive theories of etiology of the syndrome are based on the relationship of osmotic pressures within the jejunum to those within the blood. Satisfactory medical treatment of the dumping symptoms is based on dietary manipulation.

and apparently resulting from a functional type of hypoglycemic reaction.

I have felt it reasonable in defining the early or dumping syndrome to include all symptoms which commonly follow meals in patients having previous gastrectomy. These symptoms may be classified according to probable mechanisms of production as (a) mechanical and (b) vasomotor. Those considered of mechanical origin are abdominal (usually epigastric) fullness, nausea, and, at times, crampy abdominal pain followed by diarrhea. Vasomotor symptoms have included perspiration and feeling of warmth, weakness and faintness, and tachycardia. All these symptoms may be relieved if the patients assumes the reclining position.

A third major syndrome has been termed by Hayes[11] the "postgastrectomy nutritional deficit syndrome." It is characterized by failure of these patients to regain their average preoperative weight. At times continuing loss of weight proceeds to severe malnutrition with corresponding weakness and disability.

Frequency of Syndrome

Hertz[12] in 1913 published the first description of postgastrectomy symptoms written in the English language, and nine years later Mix[21] introduced the term "dumping stomach." Gastroenterostomy without gastric resection remained in vogue in the treatment of duodenal ulcer until about 1930 when the relatively frequent occurrence of gastrojejunal ulcer stimulated the swing to partial gastrectomy. Not until after the acceptance of subtotal gastric resection as the standard operation for duodenal ulcer did the side effects of dumping become generally known.

Estimates of incidence of the syndrome have ranged from 5.6 per cent to 75 per cent of patients having previously been subjected to gastrectomy. This variation can be partially explained by differences in criteria for the diagnosis. For example, Custer[4] and his associates have excluded "indefinite postprandial nausea or indigestion" unless accompanied by the "vasomotor" symptoms to which reference has already been made. Another important factor in determining incidence is the orientation and the meticulousness of the individual recording the history. (It has been found that many patients minimize this postoperative distress so that direct questioning may be required to elicit its presence.) Some authors calculating the frequency of the syndrome have listed separately symptoms they have felt were quite significant to the patient in terms of great severity and long duration as opposed to relatively insignificant symptoms of mild and transient nature.

Analysis of Records

Review of the records of the Wichita Clinic from 1948 to 1955 revealed 112 patients who had undergone partial gastric resection (including removal of the pylorus in all cases) for benign disease of the stomach and duodenum.

Records available for 94 of the patients afford a follow-up of at least three months after their surgery. Of this group, there were 54 whose postoperative records contained a complaint of dumping symptoms. This represents an incidence of 57.4 per cent of patients who had submitted to resection. This included all those complaining of dumping symptoms, regardless of the severity or persistence of the complaint. An analysis of the sex and age of the patients and the respective indications for surgery failed to clarify the problem of why the symptoms occurred.

Much has been written to guide the surgeon in his choice of operation so that he may attempt to prevent the dumping syndrome. The smallest caliber practical for the anastomotic stoma and the preservation of gastroduodenal continuity together with the amount of stomach removed have been emphasized as significant factors in this regard. Consequently, our cases were classified according to type of surgical procedure performed and according to the surgeon's estimate of the percentage of stomach removed.

It can be seen (Table I) that the number of Billroth I procedures performed was considerably fewer (14) than the number with the Billroth II type of anastomosis. If any conclusion is warranted, based

TABLE I

TYPE OF GASTRECTOMY IN RELATION TO LATER DUMPING SYMPTOMS (WICHITA CLINIC SERIES 1948-1955)

Type Gastrectomy		*Patients Operated*	*Patients with Dumping*	*Percentage with Dumping*
Billroth II	Polya type	41	25	61%
	Hoffmeister modification	21	13	62%
Billroth I		14	7	50%
Other		1	1	100%
Unknown		17	8	47%
Total		94	54	

on the slightly smaller incidence of dumping after the gastroduodenal anastomosis as opposed to the gastrojejunal one, it might be that further trial of the Billroth I procedure is indicated on this basis alone, irrespective of other factors involved in the choice of operation. These include the incidence of nutritional deficit syndrome and the incidence of ulcer recurrence. Certainly it would appear that the Hoffmeister modification of the Polya operation has not lessened the incidence of symptoms despite narrowing of the stoma.

The surgeon's estimate of the amount of stomach removed has been considered inaccurate by Harkins.[10] Taken at face value, however (Table II), these estimates do not appear to reveal any consistent relationship between the size of the resected portion and the subsequent occurrence of dumping. There appears to be little difference in the postoperative course of a traditional two-thirds resection and that of a more ambitious removal. Patients having less than 60 per cent of the stomach resected are too few to allow valid conclusions to be drawn regarding them.

Analysis of Patient Questionnaires

In order to determine the true significance of the reported dumping symptoms, questionnaires were sent to the first 52 of the patients whose records contained possible complaints indicating existence of the syndrome. Thirty returned the questionnaires with answers indicating that they definitely should be included as "dumpers." Five others had equivocal or negative answers to questions regarding postcibal distress following surgery, and their questionnaires were discarded. Seventeen others were lost to follow-up as their questionnaires were not returned. Six questionnaires were completed after personal interviews with the patient. Thus 36 of 54, or two-thirds, of the patients considered to experience dumping symptoms had subsequent follow-up by means of the questionnaire.

TABLE II

AMOUNT OF STOMACH REMOVED IN RELATION TO LATER DUMPING SYMPTOMS (WICHITA CLINIC SERIES 1948-1955)

Per Cent Stomach Resected	*Patients Operated*	*Patients with Dumping*	*Per Cent with Dumping*
Less than 60	8	3	38%
60-69	18	12	67%
70-79	34	24	71%
80-89	13	7	54%
90 or over	1	0	—
Unknown	20	8	40%
Total	94	54	

Most of the questionnaires were filled out several years after the gastric surgery to avoid emphasis on early postoperative symptoms of no lasting significance. All but 8 of 36 had been operated on at least two years earlier. Nine questionnaires reflected the patient's experience five or more years postoperatively. The average time elapsed between surgery and completion of the 36 follow-up questionnaires was 3.8 years.

Each patient was first asked if he had at any time after his surgery experienced regular discomfort or indigestion after eating. If his answer was in the affirmative, he was asked to describe the nature of the discomfort. Nausea was the most common complaint, being mentioned by 18 of the 36 individuals answering the questionnaire. Only three of these mentioned actual emesis as an accompaniment of the nausea. The next most common complaint was upper abdominal fullness, present in 11 of 36. Abdominal pain occurred in eight, occasionally being described as cramping in the mid or lower abdomen. The vasomotor phase of the dumping syndrome was reflected in seven patients who complained of perspiration or "feeling of warmth," and in six who mentioned weakness as a major discomfort after eating.

The third question dealt with the length of time after meals when any such symptoms occurred. Of the 26 patients who answered in specific terms, 13 stated the symptoms came on immediately after eating. The remainder specified that the symptoms began within 30 minutes after eating. Only two stated that it was usually an hour or more postcibum before their symptoms appeared.

Each patient was asked if specific foods had been associated with the development of his symptoms of postcibal discomfort. Twenty-two of 36 patients recognized such a qualitative difference in the food ingested. Fourteen of 22 mentioned milk or ice cream as offenders whereas 12 of 22 incriminated sweets, including cake, pie, and other sweet desserts. Several mentioned certain liquids, such as soup and coffee, when taken with meals, as offenders.

The patients were queried regarding other factors which might produce dumping symptoms, the quantity of food ingested, and the amount of exercise after the meal being mentioned specifically. Twenty-four of 36 patients completing a questionnaire commented

that overeating was likely to be followed by their symptoms. Seven of the 36 were impressed that exercise after the meal might precipitate the syndrome, although two felt they benefited by mild exercise after the meal. Three mentioned nervousness or worry as precipitating factors, while two suggested that liquids ingested with meals played a role. One commented that he fared better if a meal was delayed for a considerable time after the previous one.

When asked if they continued to experience postgastrectomy symptoms at the time of completion of the questionnaire, 8 of the 35 patients who answered indicated their symptoms had been only transient and had completely abated. Six of seven who estimated the time of relief of their symptoms noted it within six months postoperatively. The single patient who had become entirely symptom free after experiencing dumping for more than a six-month period postoperatively stated it had been "several years" before his postcibal discomfort was terminated. Nine individuals whose symptoms persisted experienced them infrequently. Five of these nine who had only occasional dumping recalled a time of definite amelioration of their symptoms. This time varied from nine months in one individual to nearly six years in another.

The duration of dumping symptoms in those patients whose full symptomatology persisted to the time of completion of the questionnaire represents a measure of the length of their follow-up. It seems to establish a tendency of the syndrome, when once present, to be a permanent problem. Twenty-three of the 36 patients specified no improvement in symptoms, and of these 19 had been operated on more than two years previously. Five had been subjected to gastrectomy more than five years earlier and were still experiencing their dumping.

A question was included concerning any changes in bowel function occurring after surgery. Of the 19 of 36 who admitted such a change, nine complained of diarrhea, and four more stated that previous constipation was improved. On the other hand, five of the 20 complained of more obstipation and constipation after surgery than before. One patient who was originally constipated after surgery required release of adhesions before his bowel function returned to normal.

Thirty-three of 35 who answered the questionnaire stated they had undergone changes in weight, and only two reported a gain. Thus, 31 had lost weight and 18 had lost 20 pounds or more. The maximum loss of studied cases measured 65 pounds, and three others lost 40 or more pounds from the average preoperative weight.

Each patient was asked to appraise his status as far as the "stomach" was concerned, by grading it as either excellent, good, fair, or poor. All eight patients experiencing complete relief of dumping graded their condition as excellent or good. Seven of the eight with occasional symptoms included themselves in the same categories. Twenty-three of the 32 patients whose postoperative dumping has persisted nevertheless classed themselves as in excellent or good condition. Only six categorized themselves as fair, and only three felt the function of the upper gastrointestinal tract was poor.

Detailed analysis of these least favorable comments revealed that all three patients grading themselves as poor had severe nausea after eating, two had perspiration and weakness, two had diarrhea, and each had lost between 20 and 40 pounds from his average preoperative weight. These patients had undergone surgery respectively three, four, and seven years earlier.

One, a frail housewife of 75 years, had developed postoperative pancreatitis with a stormy course requiring re-operation, but her main complaint was persistent nausea that was refractory to all treatment. Her gastric surgery had been an anterior Polya procedure with removal of an estimated 75 per cent of the stomach.

Another patient with unsatisfactory results was a nervous farmer of 39 years whose orginal operation had been performed for a questionable pyloric obstruction. About two-thirds of the stomach appeared to remain at the time of roentgenoscopic examination. This patient had definite hypoglycemic episodes which were reproduced by a glucose tolerance test, and he was largely incapacitated for productive work.

The third unsatisfactory result occurred in a 42-year-old man whose surgery was done for recurrent pain after a previous free perforation of an ulcer. His major complaints were perspiration and nervousness after certain meals. His physician felt he manifested symptoms of an anxiety state in addition to the postgastrectomy symptoms. The patient himself quite definitely felt that his decline dated from his gastric surgery, stating "If I had a choice . . . to have the same operation . . . I would absolutely refuse to let it be done."

Other patients contributed favorable comments such as "Feel better than I have for ten years" and "I feel wonderful." Subjective descriptions of the postgastrectomy symptoms experienced by some of the patients follow: "What pain I do have comes on suddenly and leaves suddenly with no apparent aftereffects," "Much discomfort from eating sweets, causing sweating and weakness," still another, "Breakfast is the worst from the nausea standpoint," and also, " I would appreciate gaining some of the weight back," and finally, "The bowel condition (diarrhea—JWB) is serious and humiliating. I lost

a good job on account of odor left in toilet." An unsolicited written description of probable hypoglycemia was contributed by a patient: "When doing hard physical labor I often become very weak, break out with perspiration. This condition will last about 30 minutes and usually occurs mid-morning or mid-afternoon."

The questionnaires probably present an adequate cross section of the total group of patients with dumping symptoms since two-thirds of this group completed the form. Nevertheless their numbers are too few to allow accurate percentage estimates of incidence of persistent and of significant dumping. It is of interest to note in summary that dumping had persisted to the date that the questionnaire was completed in slightly over three-fourths of the individuals who completed it (27 of 35). Just over one-half of these individuals (18 of 35) indicated that the symptoms occurred often enough to be considered significant. One must admit, however, that these figures may give an exaggerated picture of the persistence of dumping since patients having symptoms would be more likely to return the questionnaires than those who had no problems along this line.

The incidence of dumping after gastric resection in our series has been estimated at 57.4 per cent on the basis of examination of the clinical records of each patient. If slightly over three-fourths of the total original group of 54 patients classified as "dumpers" can be assumed to have persistent dumping, as did those who answered the questionnaire, then the incidence of persistent dumping in those operated for removal of pylorus in our series is 44.3 per cent. If slightly over one-half of the original "dumpers" can be assumed to have significant symptoms as did those who answered the questionnaire, then the incidence of significant dumping in the entire group of gastrectomized patients becomes 29.2 per cent.

It is felt that a brief personal case history (my own) may illustrate some salient points:

A white professional man, age 35, had been subjected six years earlier to a Hoffmeister-Polya gastrectomy with removal of approximately two-thirds of the stomach. The indication for surgery was acute recurrent massive hemorrhage. While in the hospital postoperatively he noted a tendency to feel over-full immediately after eating meals of average size. After dismissal on the 13th day after surgery he was placed on an ambulatory ulcer diet. He consumed eggnogs and other milk drinks until about three weeks postoperatively at which time he first experienced typical dumping symptoms after eating a piece of lemon pie. These symptoms were described as severe nausea, an "all-gone" feeling in the epigastrium, and a feeling of warmth, lasting about 30 minutes after he assumed the reclining position. The next severe episode occurred about one week later when the patient, who had continued to that date to tolerate milk drinks, consumed a chocolate malted milk and a sandwich in a restaurant. Rather prompt onset of severe nausea was followed by abdominal cramping, flatus, and a feeling of general weakness. He was unable to leave the restaurant until these subsided about 20 to 30 minutes later.

Gradually, by trial and error, the patient began to find that milk drinks and ice cream were poorly tolerated. He could tolerate a meal of average size without difficulty if all liquids were avoided and if no physical activity was required immediately. He was often able to eat certain desserts immediately after meals if he could remain seated, as at a banquet. Ordinarily he deferred dessert after the evening meal until bedtime. Fluids were taken between meals only. From time to time he would experience nausea, warmth, and a vague general malaise in the postcibal period without any obvious cause. Lying down would relieve these symptoms in 15 minutes or so. Often a definite diuresis would occur 30 to 60 minutes after these symptoms subsided. On one or two occasions he experienced a vague weakness in the mid-afternoon while working at his office job. Ingestion of sugar relieved this symptom promptly.

The patient agrees that his dumping symptoms six years postoperatively are less than those which occurred in the three-month period following surgery and attributes this to his acceptance of the previously mentioned dietary limitations. Since surgery he has maintained a weight about 25 pounds less than his preoperative weight, which was average for his height and age. Despite this he feels well and misses no work because of his postgastrectomy symptoms. There has been no recurrence of ulcer symptoms.

Pathogenesis of Syndrome

What are the physiologic phenomena creating the conditions that result in the dumping syndrome? Roentgenologic studies reveal that nearly all surgical procedures in which the pylorus is removed or bypassed are followed by rapid emptying of gastric contents into the small intestine. Yet not all patients who demonstrate this increased rate of emptying manifest dumping symptoms. The reason remains the basic mystery when explanation of these symptoms is attempted. Smith and his associates[27] have demonstrated to their own satisfaction that what they term "precipitate gastric emptying" occurs in patients with the symptoms. This rapid emptying of the gastric remnant is contrasted with the slightly slower emptying of the non-dumping patients who have had gastrectomy. The patients with dumping symptoms reportedly have excessive jejunal peristalsis during a barium meal with complete emptying of the stomach within 10 minutes.

This has not been confirmed by other investigators.

The time honored theory has held that dumping of ingested foods into the small intestine causes symptoms by producing rapid distention of the jejunum. It can be shown that distention of a balloon in the jejunal lumen is followed by fullness and nausea characteristic of the so-called mechanical phase of the dumping syndrome. But there is more to the syndrome than this, and Machella's physiologic studies[20] have reproduced the entire pattern of the syndrome in normal subjects. Introduction of a hypertonic glucose solution into the jejunum of individuals having intact gastrointestinal tracts is followed by both mechanical and vasomotor symptoms of dumping, especially if the distal passage of small bowel content is prevented. This work has been duplicated by Friesen[7] and by Jordan and his group.[15]

Measurements of the fluid aspirated from an isolated segement of jejunum before and after introduction of hypertonic protein hydrolysate solution have revealed that the volume of the aspirate is much greater than that which was instilled. This profuse secretion of fluid by the jejunal mucosa has been demonstrated by other investigators using hypertonic glucose. Thus the occurrence of jejunal distention is not so dependent on the volume of the meal ingested as it is upon the osmotic pressure exerted by the meal. Presumably fluid enters the intestine from the intravascular portion of the extracellular fluid space in an attempt to render the ingested material isotonic with other body fluids. Any dissipation of the existing osmotic gradient prevents development of the syndrome. To account for clinical variations in the syndromes, Machella[20] has advanced several necessary characteristics of the meal and certain general conditions which must be present for dumping to occur (Table III).

More precise definition of the mechanism of the vasomotor symptoms has been forthcoming in recent studies by Roberts and associates at Memorial Center in New York City.[25] This work demonstrates decreases in plasma volume of 300 to 700 cc. occurring coincidentally with symptoms of palpitation, tachycardia, sweating, and weakness. These investigators have confirmed Smith's previous demonstration[28] that nonspecific T wave and S-T segment changes in the electrocardiogram occur simultaneously with the plasma volume changes and the dumping symptoms. These cardiovascular findings return to normal within 60 to 120 minutes as the symptoms subside. Not only did the authors induce dumping at will by instillation into the intestine of other hypertonic solutions than glucose and protein (e.g. saline and potentially hypertonic starch), but they strikingly prevented the syndrome by simultaneously infusing 500 cc. of plasma expander intravenously. The group from the Memorial Center postulates sympathetic stimulation as the mode of production of vasomotor symptoms, probably through stimulation of pressoreceptors in the aortic-carotid sinus areas.

TABLE III

CONDITIONS NECESSARY FOR DUMPING

(Machella[20])

Meal capable of exerting high osmotic pressure
Sufficient fluid to dissolve meal and yet yield a hypertonic solution
No dispersal of osmotic energy (e.g. by vomiting, reclining, or excessive peristalsis)
Mobilization of fluid from blood into bowel with sufficient rapidity to distend it

Amdrup and Jorgensen[2] have confirmed this work by demonstrating a similar reduction in plasma volume in patients who have dumping symptoms after glucose ingestion. Those who were asymptomatic after the glucose (usually those without postprandial dumping) often demonstrated an actual increase in plasma volume. On the other hand, similar studies by Webber and his associates[30] from the Roswell Park Memorial Institute at Buffalo, New York, have questioned this cardiovascular mechanism of production of dumping symptoms after glucose ingestion by showing a lack of correlation with blood volume changes. In this series of 16 cases the drop in blood volume in asymptomatic individuals averaged slightly greater than in those who experienced dumping. The authors point up this question: Why do not all patients who experience this rapid transfer of extracellular fluid into the jejunum concurrently demonstrate symptoms?

The answer to this question may be concerned with the individual's peripheral vasomotor response to an acute change in his circulating blood volume. Hinshaw and his collaborators[13] have recently demonstrated a clear cut increase in peripheral blood flow and skin temperatures in those individuals who exhibit moderate to severe vasomotor type dumping symptoms following ingestion of hypertonic glucose. These increases in blood volume are of the magnitude of 1½ to 12 times control values, and the severity of the vasomotor symptoms seems directly correlated with the degree of such increase. Other subjects who demonstrated the same plasma volume reduction showed either no change in peripheral blood flow or evidences of vasoconstriction, i.e., decreased peripheral blood flow and skin temperature. Certain of this latter group manifested no symptoms, and those who had discomfort described only those symptoms attributed to mechanical distention such as nausea and epigastric fullness. These investigators have designated the peripheral vasodilation demonstrated by their stud-

ies as an "abnormal homeostatic vascular response." They feel that individuals with a "normal response" manifest vasoconstriction after a decrease in blood volume. The "abnormal response" apparently allows large shifts of intravascular fluids with pooling in the periphery and relative paucity of blood in the central areas of the heart and brain. Cortical anoxia has been suggested by changes in the electroencephalogram occurring while the patient is experiencing certain dumping symptoms such as dizziness.

Many other theories have been advanced to account for dumping symptoms. Physiologic mechanisms thought to account for vasomotor changes have included hyperglycemia, hypoglycemia, hypokalemia, and adrenal dysfunction. Gastrointestinal manifestations have dominated thoughts of others who have postulated jejunal hypermotility, jejunitis, and delayed emptying of the afferent jejunal loop as etiologic mechanisms. It has even been postulated by Capper[3] that the gravitational pull of bowel content on the usually "unsupported gastric remnant" accounts for the symptoms, but the work has remained unconfirmed by others.

A most recent theory has been propounded by Dyk of Austria[6] based on work apparently showing that ingested levo-rotatory sugars like fructose fail to produce the dumping symptoms which are rather typical after ingestion of dextrorotatory sugars such as glucose. It is postulated that normal individuals convert dextrorotatory to levorotatory isomers by means of an intestinal enzymatic mechanism. This conversion is said to be impaired in those susceptible to the dumping syndrome, thus allowing accumulation of a dextrorotatory product which is in turn responsible for the symptoms. Ingelfinger comments that confirmation of this theory would present startling therapeutic possibilities.[14]

It can truthfully be said that the field for physiologic research is still open where the postgastrectomy syndrome is concerned. Note should be taken of a recent publication by Leonard and associates[18] reintroducing the concept rather widely held by clinicians that dumping is essentially a psychosomatic rather than a physiologic manifestation. The contribution referred to dealt with successful treatment of severe cases of dumping at the University of Minnesota utilizing hypnotic suggestion, administered apparently by the department of surgery. The authors were led to emphasize the "psychological element" in the genesis of dumping. In this regard, reference to the present communication reveals that each of the three severe cases in patients whose current condition was graded as "poor" showed a definite neurotic background. These patients probably would have responded, perhaps more than temporarily so, to hypnotic suggestion. But it is unreasonable to infer that the great bulk of patients with this syndrome could benefit materially from therapy of this sort. Much more basic are the carefully planned and carried out physiologic studies already detailed. After all, the "final common pathway" through which emotional disturbances manifest themselves is identical to that stimulated by circulatory adjustments such as those demonstrated so well by Roberts and Hinshaw and their respective groups. This pathway of response is, of course, the autonomic nervous system.

It seems possible that one role of the psyche may be in determination of whether an individual whose blood volume diminishes after a meal of high osmotic pressure will respond with the peripheral vasoconstriction which might be expected as a homeostatic reaction or with vasodilatation, which further depletes the blood supply to central organs.[13] Possibly certain persons with "emotional instability" may likewise exhibit the vasodilatation which only aggravates their disability.

Therapeutic Suggestions

The clinician's main tools in treating the postgastrectomy syndrome prior to physiologic demonstration of its mechanism have been the age-old ones of reassurance and of antispasmodic and sedative drugs. A more novel tool has been potassium, given to correct the hypokalemia demonstrable in a certain phase of the dumping symptomatology. Surgical attempts to revamp the already altered physiology have been interesting, if not widely accepted or uniformly successful. They have included narrowing of the stoma, revision of gastrojejunal anastomoses to gastroduodenal ones, and interposition of a segment of bowel including the ileocolic sphincter, the latter in total gastrectomy. Portions of the transverse colon have also been interposed between the gastric remnant and the contiguous small bowel in attempts to re-establish the gastric reservoir.

A recent communication on therapy by Jordan and his group[16] has emphasized the possible role of a low circulating blood volume and has included the use of infusions of blood and of plasma expanders during acute symptoms. This has not only helped control the immediate symptoms but has prevented subsequent dumping altogether in several patients.

Until recently dietary methods of control of dumping symptoms have been much underrated. It is interesting that many patients whose condition improves make successful adjustments in their own diet by trial and error and without recourse to medical advice. However, attention to Machella's conditions necessary for dumping (Table III) provides a basis for a successful dietary routine the physician may utilize in education of his patient. Thus, to avoid potentially hypertonic substances, concentrated sweets are omitted from the diet. Likewise a starchy dessert which will hydrolyze to glucose is rarely taken. Milk and its products, though not often hypertonic, seem to have

a specific offending quality not yet understood. Any fluids taken in conjunction with meals place in solution the molecules which produce osmotic pressures. Reclining of the patient following meals prevents symptoms, apparently by allowing disperal of osmotic energy by regurgitation of jejunal contents into the gastric remnant. Some patients with severe dumping have fared better reclining on their couches while eating.

It is the problem of meal size which has led to the recommendation that the patient ingest six small equal feedings daily. This admonition may help the patient over the hurdle of the first few postoperative weeks, but generally it can be discarded later in favor of fewer, somewhat larger meals. He will, however, need to be cautious to avoid rapid ingestion of large volumes of food, especially when combined with fluid.

It is not difficult to see how the average American breakfast sets up an ideal situation for dumping. I refer to the starchy hot cereal with sugar and milk or cream, the coffee, and the toast or sweet roll. Breakfast can be adapted to the gastrectomy patient by omission of coffee and other drinks and the use of minimal cream on a dry unsweetened cereal along with bacon and eggs and possibly toast with considerable butter. The need for fluids can be met by their ingestion immediately after arising, or at least 30 minutes before the meal. Generally, fluid intake after a meal should be delayed 1½ to 2 hours. A large or sweeter meal may require either a longer wait before fluids are ingested or a rest in the reclining position after eating. A trap into which some patients fall is the failure to consider that many semi-solid foods become liquid immediately after ingestion. Examples are cooked cereals, gelatin salads and desserts, and custards.

Although many patients fare relatively well in the immediate postoperative period in regard to dumping, it has been recommended that specific diets be instituted prior to dismissal from the hospital. Diets of this sort should omit carbohydrates and milk products so far as possible, thus emphasizing protein and fat.* Gradually (after one or two months), vegetables and unsweetened fruits are added with complex carbohydrates. Lewis and associates[19] have eliminated the liquid diet formerly offered to patients in the immediate postoperative period in favor of a new routine of seasoned soft, and, shortly thereafter, solid food. This reduces the average volume of the meal from 24 to 16 ounces. By the time of dismissal the patient may be consuming 80 grams of protein and 2200 calories, providing all goes well.

Such detailed supervision of the immediate postoperative diet has not been necessary in my experience. Attention to restriction of volume, fluid content, and carbohydrate concentration of meals will usually suffice to prevent any severe symptoms in the first two or three months after gastrectomy. Should symptoms occur, the patient can usually control them quickly by reclining for a few minutes. Milk and its products may have to be omitted from the diet. It is well to remember that the patient often eventually learns and adapts to his own use the previously described methods to prevent dumping whether or not his physician is aware of them. It is this education by experience of the gastrectomy patient and not a mysterious physiologic adaptation of the gastrointestinal tract which explains the tendency to gradual improvement of postgastrectomy symptoms with the passage of time.

*An example of the lack of dissemination of these facts was pointed up at the very time of final preparation of this article. The dietetic association in my home community added a diet to its *Diet Manual* used as a guide in all hospitals. This was headed "Postoperative Gastric Resection," but was hardly distinguishable from the "Bland" utilized for medical treatment of ulcer save for the addition of tea and coffee. It featured liberal amounts of liquid, starches, milk products, cooked cereals, puddings and custards, baked and broiled meats, and pureed or escalloped vegetables. Prohibited were fried foods and pepper. It must be admitted that the last admonition was to "take frequent small feedings." The content of such a diet is hardly apt to reduce incidence of the postgastrectomy dumping syndrome, however.

Summary

1. Gastric surgery which by-passes or sacrifices the pylorus commonly produces a chain of uncomfortable symptoms which occur shortly after meals. Of the two phases into which these dumping symptoms may be divided, the first, termed mechanical, is thought to reflect jejunal distention. Epigastric fullness, abdominal pain, and nausea are the symptoms manifested in this phase of the dumping syndrome. In the more obscure vasomotor phase, apparently mediated through the autonomic nervous system, the patient complains of weakness, faintness, tachycardia, feeling of warmth, and actual perspiration.

2. Dumping, as reflected by the presence of at least one of these symptoms, was clearly recorded in the records of 57.4 per cent of 94 consecutive patients with gastrectomy for benign disease collected from the records of the Wichita Clinic. Analysis of these cases revealed neither a means by which one can know preoperatively which patient will develop dumping nor a way it can be effectively prevented by modification of the surgical procedure itself.

3. A written questionnaire was completed by 36 of 52 patients with dumping symptoms. These patients complained chiefly of the mechanical symptoms occurring within 30 minutes after eating, and they

were of the opinion that excessive food intake or excessive exercise after meals could produce these symptoms. Most common offending foods were milk and its products, sweets, and any liquids taken with meals. Twenty-three of 36 patients still had dumping symptoms when the questionnaire was filled out one to five years after gastrectomy.

4. The most attractive theories of etiology of the syndrome are based on the relationship of osmotic pressures within the jejunum to those within the blood. The former can be increased by ingestion of foods which are hypertonic, especially if sufficient liquid is consumed to dissolve them. Such osmotic energy can be dispersed by vomiting, diarrhea, or by reclining of the subject with reflux of the meal into the gastric remnant. However, unless such dispersal of osmotic pressures occurs, a sudden shift of extracellular fluid from the blood to the jejunum results which equalizes osmotic relationships between the two areas. The resultant decrease in blood volume is accompanied in certain individuals by a marked peripheral vasodilatation which results in pooling of blood away from the central areas such as heart and brain. The vast amount of fluid entering the jejunum itself produces distention and the mechanical phase of symptomatology, whereas the vasomotor symptoms are probably mediated through the autonomic nervous system, discharges of which seem to be initiated by acute changes in the circulating blood volume.

5. Satisfactory medical treatment of the dumping symptoms is based on dietary manipulation. Sweets, fluids, and milk products are avoided with meals, especially if their volume is large. Rest in the reclining position is advised after an unavoidably large meal. Small frequent feedings are preferable, especially in the early postoperative period.

6. It is felt that apparent spontaneous improvement of the patient with the postgastrectomy syndrome usually reflects a process of self-education. By trial and error the patient eventually learns to omit dietary items which are followed by dumping symptoms. The physician who understands the physiologic mechanisms of this postgastrectomy syndrome can often lead his patients quickly to a remission of these troublesome symptoms.

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Control of Pain

—"*The Most Common Complaint Which Prompts Patients to Seek Medical Aid*"

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Despite many advances in medicine which have been made during the last quarter of a century, the management of pain remains one of the most difficult and often vexing phases of medical practice. This is not only because it is the leading symptom of many diseases, and therefore constitutes one of the most frequent reasons for patients seeking counsel of their physicians, but also because it is often a complex and distressing problem. It is obvious, therefore, that the proper management of pain constitutes, from the patient's standpoint at least, the most important obligation and one of the main objectives of every physician.

The general practitioner, caring as he does for the majority of patients, and most often being the first to see the patient, has among all physicians the most important and heaviest responsibility in proper management. It is the purpose of this presentation to discuss briefly some aspects of the pain process, to indicate what methods are presently available in the treatment of chronic pain, and briefly to mention some pain syndromes and indicate the role of the general practitioner in their management.

Although some therapeutic procedures which will be mentioned are obviously outside the sphere of general practice, appreciation of their indications, advantages, limitations, and disadvantages by the family physician is essential to fulfill his role as coordinator of treatment. Obviously, many painful disorders can be quickly remedied with simple medical means. In this presentation we are not concerned with this type of pain, but with persistent pain.

What Is Pain?

In order to understand some principles of managing patients with pain and the proper therapeutic application of various methods, it is essential to have some concept on the nature of the pain process. Although most people know what is meant by the word "pain," almost all have great difficulty in defining it. This is so because pain is a highly personal affair, entirely subjective in nature, and a complex physiopsychologic phenomenon which almost defies enquiry.

Some believe that the total pain experience is com-

Pain is the most common complaint which prompts patients to seek medical aid. In most instances it is a symptom of a medical or surgical disorder which can be cured by operation or by the use of certain drugs. Unfortunately, in some cases the cause of pain is not known; or, if it is known, it cannot be eradicated and other methods must be employed to treat the pain itself. Methods which are available for this purpose at present are presented.

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posed of the perception of pain and the associated emotional reaction and effective states. The perception of pain, like the perception of other sensations, such as temperature and touch, is a neurophysiologic process which has special structural, functional, and perceptional properties and is accomplished by means of relatively simple and primitive neural receptive and conductive mechanisms. It is measurable and constant, although it can be modified by drugs and psychic factors and completely obviated by interruption of its pathways by chemical nerve block (or surgical means).

The reaction to pain, on the other hand, is a complex physiopsychologic process which involves the cognitive functions of the individual. It represents the emotional and physiologic expression resulting from the perception of pain. It is what the individual feels, thinks, and does about the pain he perceives, and what pain means to him in the light of his past experiences.

Although this artificial dichotomy of the pain experience has proved useful to some in studying and understanding it, it is doubtful that there is such a thing as a pure sensation of pain separate and distinct from the influence of reaction. We believe, as do many others, that the essential part of pain is awareness, and no other sensation or experience can be termed "pain" unless it is felt as such. Moreover, there are so many neuronal influences modifying the input from the pain source before it reaches awareness, that central perception of pain can be considered to result from many different impulses being registered and interpreted, and this emphasizes a unit sensation which is greater than its constituent parts and is thus a new entity. Thus, while the original sensation may be considered the same for all individuals, it loses that sameness as soon as the process begins and is no longer a pure sensation. I believe that the quality of the feeling state, the patient's complaint, and his physical and mental responses, are manifestations of the reactions and are the most relevant of the pain experience. This is one of the most important and fundamental facts about pain. It must be accepted with its full implication if one is to be successful in managing patients with intractable pain.

Some Characteristics of Pain. Noxious stimulation produces pain which differs in its characteristics in accordance with the structure involved. The characteristics of pain of special interest to the clinician include quality, intensity, duration, and extension. It is well known that injury to the superficial somatic structures produces pain which has a sharp quality, is well localized, and is felt quickly, while deep pain is described as a dull, aching, sickening discomfort which is poorly localized.

In addition to pain, there are other responses to noxious stimulation which must be seriously considered in treatment. These include local tenderness, reflex skeletal-muscle contraction, vasospasm, hyperhydrosis, and frequently a disturbance in the spinal cord. The degree of these responses depends upon the intensity and duration of this stimulus: the more intense and the longer the injury, the more it is likely that these associated phenomena occur, and the more intense they become. These responses frequently act as new sources of noxious stimulation which initiate a vicious circle which may become self-perpetuating.

There are several other important characteristics of pain which must be kept in mind. Pain is rarely constant in intensity for any protracted period of time. The intensity of pain arising from a lesion is independent of the size of lesion, and where two or more sources of pain stimuli exist coincidentally, perception of pain is monopolized by the most intense. Perhaps the paramount factor in determining the intensity of pain and suffering is the significance of its source. If there is no worry or other distressing implication regarding its source, pain is comparatively well tolerated.

Pain of long standing, no matter whether moderate or severe, produces physical and psychologic depletion which varies widely between individuals and may be evidence of basic personality differences. Patients with chronic pain have a gradual but complete alteration in attitude toward their environment. Consequently they have no other interest, and the pain becomes in fact a consuming problem which completely dominates their lives. In such cases, interruption of pain pathways cannot solve the problem entirely. In many instances the problem is much more complicated and necessitates a long term application of psycho-therapeutic and rehabilitative measures as well. The presence of general debility, malnutrition, fatigue, anxiety, or mental turmoil decreases further the reaction threshold, so that the pain is more severe and more difficult to treat. Lack of sleep is particularly important in this respect.

Pain Pathways. Mention of pain pathways is included for the sake of completeness and because a thorough understanding of these pathways is essential in properly applying some methods used to control persistent pain. The nervous pathways of pain may be said to be organized into three distinct units or relays: (a) the first relay or peripheral sensory neurons, (b) the second relay or connector or internuncial neurons, and (c) the third relay or sensory neurons. It should be stressed that the pathways in the central nervous system are not neatly compartmentalized. Their location, particularly in the spinal cord, is most diffuse, a point of great importance to the neurosurgeon who attempts to interrupt the pathway by chordotomy.

Methods of Pain Control

There is need for a basic orientation in regard to the totally functioning human being and evaluation in such a complex process as pain. From a standpoint of approaches to treatment, it is desirable to differentiate that which is primarily structural, primarily physiologic, and primarily psychologic. When there is a significant psychic factor, as in many psychophysiologic disorders, or when there is pain related to personality factors but without demonstrable physiologic changes, treatment of the psychologic problem becomes paramount. In these cases it is incumbent on us to treat the underlying psychophysiologic condition and to consider the fundamental methods of psychiatric management. The same may be said about management of patients for certain psychiatric conditions in which pain may be a prominent symptom. Since a discussion of psychiatric technic is beyond the scope of this paper, nothing more will be said except to reemphasize the importance of this method in managing patients with intractable pain. An excellent dissertation on the subject has been written by Ripley.[6]

Now let us focus our attention on the patient with pain of structural etiology and on those with pain accompanying altered physiologic function without structural changes. Although psychologic support is useful in helping these patients, the main treatment is directed to elimination of the primary disease. This may be accomplished medically by means of drugs (antibiotics, antispasmodics, spasmolytics (curare), vasodilators, vasoconstrictors, etc.), by surgical extirpation, or by treating with physical methods (roentgen therapy, physical therapy). In such patients with pain due to self-limiting medical disorders, or due to diseases which indicate surgical extirpation, the solution of the pain problem is usually clear-cut and relatively simple. However, in patients with protracted pain, the cause or mechanism of which cannot be ascertained or eliminated, the problem is often difficult from a therapeutic as well as from a diagnostic standpoint. Such cases require a well planned attack that is based upon certain fundamental principles which must be followed if optimal results are to be achieved.

Basic Principles of Management. In instances of intractable pain, diagnosis and localization of the source of the pain usually require thorough and detailed examination of the patient and a correct interpretation of medical, neurologic, radiologic, and laboratory data. It becomes immediately apparent that proper management of such patients requires a great deal of time and effort, more than some practitioners are willing to spend. Unless the physician devotes the necessary time to the problem, he cannot hope to achieve optimal results. In fact, he may do more harm than good.

A proper diagnosis is a requisite for successful management of pain in any patient, and particularly in those with intractable pain. This can be obtained only by detailed history of the pain in its three phases or periods: onset, course, and present status. Circumstances contributing to the cause of pain, location and distribution, quality, intensity and severity and duration of the first pain should be ascertained. Factors which aggravate and relieve pain are especially important.

Proper examination of the painful region and interpretation of findings require consideration of the mechanism of pain. Frequently the pain is referred to an area away from the site of the disease or injury. Examination of the painful region is followed by general physical examination. Since many pain syndromes involve muscular and nervous systems, a simple orthopedic and neurologic examination should always be done. Study of the blood, urine, cerebrospinal fluid, and x-rays often provide information without which a diagnosis cannot be made.

Since to properly appraise pain it is essential to know something about the patient's personality, background, intellectual status, and emotional reaction, a mental examination is necessary.

After a diagnosis has been made and the mechanism of pain is determined, it is essential to plan carefully the best course of treatment. In determining what procedures are to be used, it is necessary to consider many factors; cause of the pain, site, type and mechanism, intensity, and probable duration must be taken into account. In addition, it is essential to consider the nature of the disease causing the pain and the age of the patient, his physical and mental status, his life expectancy, and his obligations to his family and community. Frequently the methods which are locally available and practical under the circumstances must be considered. However, the physician should not hesitate to recommend a form of pain control available elsewhere if this has superior advantage over methods available locally. In case of doubt, it is advisable to explain the advantages, disadvantages, and limitations of each method and let the patient and his family make the decision.

Frequently management of pain requires application of several therapeutic methods. There has been relatively little clinical exploitation of a multipsychic approach to pain control by applying several well chosen combinations of therapeutic methods, each specific for certain desired effects. This is usually much more effective and far more satisfactory than alteration of the reaction with addictive analgesics.

Since persistent pain exacts a heavy price in the form of physical and mental depletions, it is most

important to provide complete relief at the earliest possible date. Although systemic analgesics are most frequently used in treating severe intractable pain, it must be realized that they seldom completely relieve discomfort but merely make it more tolerable. For this reason, it is important to consider the early use of some method to interrupt pain pathways before tolerance and addiction to analgesics develop.

Psychologic Support. All patients who experience moderate to severe chronic pain require psychologic support and moral encouragement. The first positive step in relief of intractable suffering occurs when a physician manifests his responsibility and willingness to properly discharge his obligations for the care of the patient. In addition to the benefit made possible by modern science, the physician should bring the patient sympathetic understanding, kindness, cheerfulness, and reassurance. Since patients are quick to sense an attitude of defeatism or a lack of interest, the physician should do all he can to instill confidence and a sense of security based upon the conviction that all possible will be done to relieve his suffering. The general practitioner, by virtue of the proper rapport and confidence he has cultivated in the patient, is best qualified to carry out this phase of management.

Measures to support the patient physically are also essential, not only to compensate for physiologic depletions but also because malnourished patients cannot tolerate pain as well as those in good physical condition. Diet should be high in protein, vitamins, and calories. If anemia is present in spite of proper therapy, transfusion should be given. In addition, good hygiene and competent nursing care, together with rest and sufficient sleep, are necessary.

Analgesics. Clinically, the most commonly employed method in managing persistent pain involves the use of systemic analgesics and hypnotic drugs to reduce symptoms of or modify reaction to pain. In selecting the type of analgesia to use, the quality and intensity of pain are the most important considerations.

Non-Addictive Analgesics. Mild pain can be adequately controlled with non-addictive analgesics such as aspirin, alone and in combination with a hypnotic. These drugs owe their effectiveness almost entirely to the fact that they raise the threshold of pain perception, since they have little effect upon reaction or mood. Combination with a barbiturate or with chloralhydrate is particularly advantageous because in many instances the pain which is termed "pain" by the patient represents in part a manifestation of fear or anxiety. Moreover, hypnotic drugs assure sleep—a most important consideration in these patients. The more significant recent observations concerning the use of these drugs is that they are as effective in doses of 0.6 grams (10 grains) as in much larger doses. Moreover, the addition of sodium carbonate is of little value because it does not hasten the absorption of aspirin as alleged by some.

Addictive (Narcotic) Analgesics. When pain becomes severe and persistent and other methods are contraindicated or not available, the proper use of narcotic drug is of great benefit. The role of narcotic drugs is too well known to warrant further discussion except to emphatically state that their effectiveness, low cost, and ease of administration—very desirable qualities in any drug—are conducive to improper treatment. This is particularly true in managing intractable pain of undetermined origin, when there is a tendency for the busy physician to resort to the easier and less time-consuming method of administering these drugs. The undesirable side effects on the respiratory, gastrointestinal, genitourinary, and central nervous systems, as well as the problem of addiction, must be considered when narcotics are employed for a prolonged period of time.

The misuse of narcotics is without doubt one of the most serious and often disastrous areas in clinical medicine. The physician may be entrapped into committing such an error by humane though unconsidered decision to keep the patient from suffering. Administration of narcotics in patients with chronic pain is a frustrating short-lived type of kindness. Such sense of mistaken humanitarianism is inevitably productive of tolerance and other phases of addiction, and it is really a great disservice to the patient. This is so because with continued use of addictive analgesics, tolerance of the analgesic action develops and eventually an impasse is reached in which the patient's daily narcotic requirements are high, yet the alleviation of pain is inadequate. In addition to being medically unsatisfactory, this situation is fraught with the possibility of social and economic disaster for the addicted patient and his family.

By far the most important factor in proper management of chronic pain is the performance of a physician. If the practitioner views pain traditionally, as merely a symptom of physical disease, instead of considering the whole person, and further disregards emotional changes that arise with pain, proper management is impossible. Such a physician finds it necessary to administer narcotics frequently. Because he offers nothing else, he tends to encourage the use of these drugs and to make them essential to his patients. On the other hand, the attentive physician who offers his patient sympathetic understanding, kindness, cheerfulness, steady psychologic support, and realistic perspective realizes similar results without resorting to frequent use of addictive drugs He prescribes such drugs only as a specific part of the relation be-

tween physician and patient and not as a substitute for that relationship.

In patients in whom it is necessary to control pain with narcotics, either due to the nature of the disease or other circumstances, design for their use requires certain considerations. Although morphine is the time honored drug, there are those patients for whom this drug fails. For every patient who must be on a narcotic regimen in the face of intractable pain, there is some opiate or opioid which is superior to any other. Its supremacy depends upon complex qualities besides analgesia, and the final criterion in any case is which of the drugs best satifies the patient. His reaction to the drug represents a composite of analgesia, pleasant modification of mood, freedom from undesirable side effects and hangover, and many other factors. It is essential, therefore, to plan a systematic search for the most suitable drug. This is best accomplished by the rotation system of administering a different drug every 24 hours and then having the patient decide which is most effective. It is best to do this without the knowledge of the patient or the nurse administering the drugs in order to avoid bias.

After ascertaining the optimal drug, the physician must determine the optimal dose. Several different doses of the drug are prepared in syringes which are coded and then given to the nurse without divulging specific amounts in each syringe. This also is done to avoid bias. Occasionally one or two doses of placebo are included to ascertain the degree of placebo reaction. The nurse is requested to observe and record accurately the results after each injection. The smallest dose that provides comfort with minimal side effects is selected as the optimal dose. Obviously this prolonged search for the optimal drug and optimal dose cannot be used in acute pain.

In order to delay addiction and tolerance, narcotics should be given at irregular intervals. It should be stressed that the patient should be given sufficient amounts of the drug and at intervals to obviate periods of severe pain. One of the things that will make psychologic dependence develop quickly is failure to use enough of the drug to achieve the desired effects. This can be avoided by assuring adequacy of the dose by giving the drug promptly on the appearance of pain, and by not waiting until the patient writhes with pain.

In patients receiving large doses of narcotics for chronic pain, care must be exercised in carrying out a neurosurgical operation or nerve block procedure. Sudden elimination of pain by interruption of its pathways may result in respiratory depression or even apnea. The use of narcotic antagonists such as nalorphine and levallorphan may be effective in counteracting the depressant effects of addictive analgesics. It should be stressed that narcotics infrequently really abolish pain; they merely make it more bearable, and, what is more important, acceptable. Therefore, it is essential to consider early use of some method to interrupt pain pathways by chemical-surgical means. When this is done, there is reasonable expectation that the patient may have some actual freedom from pain as well as the discomfort from pain in neurosurgical operations.

Hypnotics, Sedatives and Tranquilizers. The fear of pain and other affective reactions to pain may be modified by the use of drugs other than analgesics. Properly employed, barbiturates and tranquilizing agents are effective in decreasing the need for narcotic analgesics. The mechanism of their action is undoubtedly on the reaction phase of pain. Barbiturates, like opiates, alter psychic modification of pain. In this manner concern, anxiety, fear, and significance are detached from pain. Wine or other alcoholic beverages to relieve pain and produce euphoria may be indicated as a method of management. Thorazine should not be used in patients who have received large or known quantities of barbiturates, narcotics, or alcohol. Because it potentiates hypotension produced by spinal or extradural anesthesia, it should never be used in conjunction with nerve blocks that produce excessive vasomotor paralysis.

Placebos. Although much neglected and often scorned, placebos constitute one of a valuable group of drugs which have their effect on the central nervous system. Fully one-third of patients with severe steady postoperative pain were relieved with saline or lactose placebos. The mechanism by which placebos have relieved pain is not definitely known but probably involves effects of suggestion on the reaction phase of pain.

There are two absolute requisites for success in the use of placebos: the first is that the patient must believe that he has been given a drug intended to relieve pain, and the second is that the nurse or attendant who administers the drug share in that belief. An effective way in prescribing a placebo is to include it in a series of analgesics.

Neurosurgical Operations

For patients having severe, intractable pain and for whom palliative procedures cannot be done or have been ineffective, and who are still in fairly good health, prolonged relief can sometimes be obtained by neurosurgical operations. Although this form of therapy is often considered a last resort because of its serious and radical nature and its irreversible effects, it should not be delayed unnecessarily until the patient is hopelessly addicted to narcotics.

From the discussion of pain pathways, it is apparent that these can be surgically isolated from central nerve

roots and autonomic nerves, or in the neuraxis by section of the spinothalamic tract in the spinal cord, medulla, mesencephalon, or at their way stations in the thalamus. Conscious perception of pain may be altered by resection of the postcentral cortex or by division or resection of various portions of the frontal lobes.

Peripheral Neurotomy. The simplest and least useful operation is section of a peripheral nerve which may be used to control localized pain of the extremities due to gangrene, painful arthritis of the hip, and tic douloureux involving small peripheral branches.

Rhizotomy. Rhizotomy constitutes interruption of sensory fibers at preganglionic levels and is the neurosurgical technic of choice in management of pain of the head and neck such as occurs with trigeminal neuralgia, cancer, and other chronic disorders. It can be used also in localizing intractable pain in the trunk if only a few segments are involved and the pain is not likely to spread. It is particularly useful in segmental pain due to compression by fractured vertebra secondary to cancer, tuberculosis, or osteoporosis, and also in patients with arthritic spurs.

Since this procedure results in loss of all modality or sensation, it is not suitable for pain in the extremities, because loss of proprioception and touch sensation produces an essentially useless limb. The disadvantage inherent in rhizotomy, besides the fact that it requires craniotomy or laminectomy, is that the pain may spread beyond the denervated areas as the lesion progresses.

Sympathectomy. Sympathectomy is useful in controlling pain of vascular and purely visceral origin. Its value in patients with angina pectoris who cannot be relieved by medical means is well known. Splanchnicectomy results in interruption of pain pathways of the upper abdominal viscera and is useful in managing patients with intractable pain due to chronic pancreatitis, biliary disorders, gastrointestinal disease, and intestinal dyskinesia. Sympathectomy is also of value in idiopathic nephralgia and dysmenorrhea, but it is not effective in patients with pain originating in the bladder, prostate, or cervix uteri where afferent fibers run in the sacral nerves.

Sympathectomy is of great value in patients with major causalgia and other reflex sympathetic dystrophies and almost always relieves pain permanently. Sympathectomy is also effective in relieving pain due to peripheral vascular insufficiency such as that produced by Raynaud's disease, arteriosclerosis, thromboangiitis obliterans, and other vasospastic disorders.

Spinothalamic Tractotomy. The anatomic arrangement of tracts in the spinal cord and brain permits section of pain and temperature fibers without disturbing other functions to a significant degree. This operation is the most effective procedure for the relief of severe, intractable pain due to cancer, injuries to the cauda equina or lower segments of the spinal cord, arachnoiditis, tabetic crises, and phantom limb pain or major neuralgia that follows amputation.

The best results are obtained with high thoracic anterolateral chordotomy for pain in the lower extremities and pelvis. To relieve pain in the upper thorax or arm, it is necessary to do the tractotomy at the first or second cervical level. For patients with pain in the shoulder and neck, it is necessary to interrupt the spinothalamic tract in the medulla or at higher levels. Tractotomy in the mesencephalon is feasible but is followed by disagreeable paresthesia in the zone of analgesia, high mortality, and a tendency for analgesia to fade.

Complications that follow chordotomy are primarily due to the interruption of motor tracts and include vesical dysfunction, fecal incontinence, weakness of the limbs, hypotension, sexual dysfunction in males, and respiratory paresis or paralysis with dysesthesia. In addition, radicular pain, paresthesia, and other sensory disturbances occur.

Cerebral Operations. Interruption of the fibers projected from the thalamus to the frontal and supraorbital cortex or resection of these areas suppresses or modifies the reactive expression of pain and awareness of suffering without affecting perception of pain. Prefrontal leucotomy (lobotomy) is a relatively new tool in the armamentarium of the neurosurgeon for treatment of intractable pain. This procedure has had enthusiastic acclaim in some quarters but must be considered as the court of last appeal.

This procedure apparently benefits the patient with intractable pain in two ways: (1) It alters his pain pattern and his appreciation of pain; and (2) It would seem that the greatest value of this procedure lies more in the alteration of the patient's personality and the consequent relief from anticipation of death than in the actual relief of pain. Following this procedure, narcotics can be decreased or discontinued; although withdrawal symptoms occur, they are mild.

Bilateral prefrontal lobotomy almost always produces quite a striking change in the patient's personality. There is a peculiar apathy, and normal human qualities of compassion, restraint, and moral values are blunted. It has been said that "the patient has lost his soul," but this may be preferable to entrapment by intolerable pain and drug addiction. On the other hand, these effects sometimes complicate rather than simplify management of these patients. Moreover, it is not unusual for pain to return with passage of time.

In view of these serious disadvantages, prefrontal lobotomy should not be considered for conditions that can be taken care of adequately with a properly

executed chordotomy, rhizotomy, or sympathectomy. It should be reserved for patients with severe pain in whom other measures have failed or cannot be tried. Since unilateral lobotomy is followed by fewer undesirable effects, it is best to perform the operation on one side and, if the pain returns, carry out section of the opposite side later. It has been noted that a two-stage operation relieves pain as effectively but with less psychic deterioration than the one-stage bilateral operation.

Nerve Blocks

In the management of patients with persistent pain, nerve blocks can be used as diagnostic, prognostic, prophylactic, or therapeutic measures. Diagnostic blocks are performed to secure information on the mechanism of pain in a particular case and to determine pain pathways. In this way it may be used effectively to aid in differentiating diseases. Occasionally a block is performed to determine what the patient's reaction will be to a situation in which the pain pathway may be interrupted. Because of its reversible action, this method is useful to predict the effects of surgical section and thus facilitate proper selection of patients for neurosurgery. Moreover, such prognostic blocks afford the patient an opportunity to experience the numbness and other effects that follow interruption of somatic pathways.

Beneficial therapeutic effects of nerve blocks are brought about by interruption of pain pathways, interruption of abnormal reflex phenomena, and production of vasodilation. Analgesia consequent to interruption of pain pathways not only affords the patient relief and comfort but permits application of other therapeutic measures which would otherwise be difficult or even impossible to use. Furthermore, analgesia allows time for more adequate preparation of the patient prior to surgical operations. Temporary block of abnormal reflex phenomena can produce prolonged benefit by breaking up the so-called vicious circle of a number of painful disorders. In conditions such as reflex sympathetic dystrophy and post-traumatic vasospastic disorders, an abnormal number of afferent impulses originating from the site of trauma or infection sets up an abnormal state in the spinal cord which spreads to involve autonomic and somatic efferent components, resulting in abnormal vasospasm, increased sudomotor and other sympathetic functions, and skeletal muscular spasm. These in turn act as a new source of noxious stimulus which further aggravates disturbance in the spinal cord, thus setting up a vicious circle. Interruption of the vicious circle anywhere along its course with local anesthetics frequently is followed by improvement which outlasts the block by hours and even days.

In general, temporary blocks are produced by aqueous solutions of local anesthetics and are used for diagnosis, prognosis, and prophylaxis and also for therapy of certain self-limiting diseases and reflex disturbances. Prolonged blocks are produced by injecting neurolytic agents such as phenol and alcohol and are usually reserved to control severe, intractable pain in patients in whom neurosurgical interruption is not feasible or who refuse operation.

Any peripheral nerve—whether cranial, spinal, or autonomic—can be approached with a needle so its function is suspended. Moreover, the interruption can be effected at various sites along the course of the nerves. Proper decision as to the optimal site of injection in a particular case requires thorough knowledge of the anatomy of the involved pathways and also of the mechanism producing the pain. All nerve block technics are useful and have their own peculiar indications and disadvantages.

Local Block. Physicochemical interruption of sensory pathways may be produced at their endings in the periphery by infiltration or topical application of local anesthetic agents. This method is particularly useful in painful states indicated or perpetuated by so-called trigger areas in somatic structures. These trigger areas develop consequent to accidental or surgical trauma, infection, and other disorders and act as a constant focus of irritation which continuously bombards the central nervous system with afferent impulses, thus creating an abnormal state of activity in the internuncial centers of the spinal cord. With local block the vicious circle is interrupted by blocking the noxious impulses almost at their source.

In most instances, injection of the focus, which not infrequently is situated away from the area of pain reference, is followed by a disappearance of pain, muscle spasm, and vasomotor disturbances for periods that are much longer than the duration of anesthesia. It is essential, however, that the trigger area is accurately located and injected. It is important to note that post-traumatic and postoperative scars may act as trigger areas even when not painful or tender. Such trigger areas may also be located in the tonsils or peridental structures.

Local block is also useful in diagnosis and treatment of acute and chronic cutaneous and musculoskeletal painful disorders such as ligamentous sprains, fractures, bursitis, tendinitis, epicondilitis, periarthritis, certain forms of arthritis, low back pain, acute torticollis, fibrositis, and a great variety of myofascial syndromes with trigger mechanisms such as scapulocostal and scalenus anticus syndromes.

Peripheral Somatic Nerve Block. Block of cranial and spinal nerves is indicated in the management of neuralgia, which we define as pain of any type along the distribution of a nerve or nerves. Since this condition is usually a symptomatic expression of neurop-

athy that results from inflammatory, circulatory, toxic, degenerative, metabolic, or neoplastic disturbance in the nerve, sensory ganglia, or central nervous system, it is essential that an attempt is made to eliminate the cause before therapeutic blocks are considered.

Sympathetic Block. Temporary interruption of sympathetic pathways is indicated in peripheral vascular disease, reflex sympathetic dystrophies, and visceral pain. In the acute phase of these conditions, sympathetic blocks are valuable not only as diagnostic-prognostic procedures but also as definitive therapeutic measures. In chronic disorders, temporary sympathetic blocks are useful as diagnostic-prognostic procedures. Prolonged interruption is best effected by surgery, although in poor risk patients alcohol blocks may be indicated.

Peridural Block. This procedure is one of the most useful technics in managing severe persistent pain of the trunk and lower extremities. By inserting a continuous catheter the duration of the block can be extended for hours, days, and weeks and thus increase the usefulness of this technic. Since it effects interruption of somatic and sympathetic fibers, it may be used when block of both pathways is indicated, such as obtains in vasospasm of peripheral vascular disease, painful phantom limb, acute pancreatitis, biliary colic, acute cholecystitis, renal and ureteral colic and other severe visceral disorders, multiple rib fractures, and fractures of the spine, pelvis, and lower extremities. In certain patients with severe, intractable cancer pain involving the lower portion of the body, continuous peridural block for a number of days is of great value not only as a prognostic procedure but also as a method of providing respite and preparing the patient for more radical procedure.

Subarachnoid Block. Single dose or continuous subarachnoid block with local anesthetic agents may be used as diagnostic, prognostic, or therapeutic measures in managing pain of the abdomen and lower extremities. The indications are the same as those for peridural block.

Subarachnoid alcohol block, when properly used, produces a chemical posterior rhizotomy which compares favorably with surgical section. It is particularly useful in relieving cancer pain caused by pressure of somatic nerve or nerve roots as produced by metastatic lesion of the vertebrae and tumors in the paravertebral regions. The duration of pain relief varies from several weeks to many months and sometimes years with an average duration of three to five months.

Other Methods

A number of other procedures may be used alone or as adjuncts to the foregoing methods. These include physical therapeutic procedures, radiation therapy, and the use of endocrine substances and chemotherapeutic agents. Since a detailed discussion of these methods is beyond the scope of this paper, they are mentioned merely for the sake of completeness.

Physical therapeutic procedures are frequently employed as adjuncts to surgical, orthopedic, neurosurgical, or anesthesiologic methods. The value of local application of heat in traumatic or inflammatory disorders involving bursa, joints, and bones has been long appreciated. This method is extremely useful in contusions, strains, sprains, synovitis, muscle spasm, arthritis, fibrositis, and a number of other musculoskeletal disorders. Occasionally cold is used as an adjunct in the management of pain secondary to acute circulatory insufficiency and that due to sprains and contusions and certain inflammatory disorders. The effectiveness of these and other physical therapeutic technics, including the local application of ultraviolet radiation, the use of ion transfer, massage, and exercise, is too well known to warrant even brief discussion.

Roentgen therapy is occasionally employed in treating such painful inflammatory diseases as furuncles, carbuncles, sinusitis, parotitis, thyroiditis, and thrombophlebitis, but its value has diminished in recent years. Herpes zoster and various other forms of radiculitis, as well as neuritis and other neurologic disorders, are sometimes treated successfully with this form of therapy. Roentgen therapy has also been used in bursitis, peritendinitis, arthritis, periarthritis, epicondylitis, and numerous other musculoskeletal disorders.

Without doubt the greatest use of roentgen therapy in pain control is in patients with neoplastic diseases. Despite the fact that effects of radiation therapy on pain are often unpredictable, relief is sufficiently striking in many cases to warrant trial. In addition to producing comfort, it frequently attenuates growth and thus reduces toxicity and enhances systemic improvement with consequent gain in weight and strength and improvement of well-being and general outlook. Other palliative benefits consist of repression or healing of ulceration, decrease or complete control of hemorrhage, healing of metastatic bone lesions, repair of certain pathologic fractures, suppression of cough and dyspnea in lung and mediastinal metastasis, retardation of localized and generalized metastasis, and prolongation of life.

The patients most likely to benefit from roentgen therapy include those with metastasis to bones from tumors of the glandular organs, particularly those from the breast, lung, kidney, thyroid, testis, or uterus. Roentgen therapy also helps some patients with pulmonary metastasis from seminoma, with hilar metastasis, with solitary metastasis to the lung, with carcinomatous pleurisy, and with metastasis to the skin.

Occasionally the pain of liver metastasis can be relieved with x-ray therapy. Pain due to inoperable carcinoma of the cervix, urinary bladder, kidney, or lung (particularly pulmonary sulcus tumor), and pain due to Ewing's tumor can be relieved with roentgen therapy. With some of these lesions roentgen therapy is combined with either surgery or endocrine therapy. If pain is so severe that radiation therapy is difficult, a preliminary nerve block of the painful site will afford sufficient relief to facilitate x-ray treatment.

The value of corticoids, cortisone, hydrocortisone, ACTH, and other steroid compounds in the control of pain associated with arthritis, bursitis, and various other musculoskeletal disorders is too well known to warrant further discussion. The same may be said of phenylbutozone. Steroids also are useful in treating multiple myeloma of the bone. Certain endocrine substances effectively relieve pain in some patients with cancer. Androgens and estrogens, in breast cancer, and estrogens in cancer of the prostate, are known to cause regression of the tumor and dramatic relief of pain. Nitrogen mustards have been helpful in certain lymphoid neoplasms, particularly Hodgkin's disease, lymphosarcoma, and leukemia. Some cases of thyroid metastasis have been successfully treated with radioactive iodine, and recently radioactive iron has proved effective in treatment of cancer of the prostate. Castration, effected either by surgical removal or by radiation therapy, has proved effective in causing regression of advanced breast cancer and cancer of the prostate. These procedures not only cause the primary cancer to regress but frequently cause metastatic lesions to decrease or completely disappear, with consequent dramatic relief of pain and general improvement of the patient. Whenever these agents are indicated, they should be used early before resorting to continuous narcotic therapy or neurosurgery. Also if the pain warrants it, analgesic blocks may be used as palliative measures during the course of endocrine therapy.

Summary

Although analgesic agents, particularly narcotics, are the most commonly employed form of therapy, it is necessary that they be used with discretion because they produce undesirable side effects. It is best to employ this group of drugs in patients in whom other methods have failed or are not feasible.

For patients having severe intractable pain and who are still in fairly good health, prolonged relief should be provided by neurosurgical operations. These include peripheral neurotomy, rhizotomy, sympathectomy, chordotomy, and prefrontal lobotomy. Each of these technics has specific indications and should be selected with care in order to provide optimal results.

In patients in whom interruption of pain pathways is indicated and who are in poor physical condition, nerve block should be considered. This is an effective method of sectioning pain pathways and when properly applied offers certain advantages not to be had with other methods. They may be used as diagnostic, prognostic, prophylactic, or therapeutic measures. Since almost any nerve in the body can be interrupted, it is necessary to select the procedure which will provide optimal relief.

In addition to the foregoing there are a number of other procedures which may be used as adjuncts. These include physical therapy, roentgen therapy, and the use of endocrine and chemotherapeutic agents. All patients with severe, chronic pain require psychologic and physiologic support. In some patients the pain is related to personality factors and requires psychiatric treatment.

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National Conference on Rural Health—March 5-7, 1959

Wichita, Kansas

Esophageal Atresia

Report of Successfully Treated Surgical Case in a Premature Infant

CALVIN R. OPENSHAW, M.D.; ROBERT N. SHEARS, M.D., *and* JOYCE SUMNER, M.D., *Hutchinson*

Esophageal atresia with tracheoesophageal fistula remains one of the most challenging and frustrating surgical problems encountered in the first hours of life. Particularly is this so when prematurity further complicates the picture.

That primary reconstruction is the treatment of choice has become accepted in recent years. However, the mortality rate remains high, and Gross[1] has recently advocated temporizing by performing simple ligation of the fistula and feeding gastrostomy with prematures under five pounds of body weight. After sufficient gain in weight and development has taken place, he carries out a secondary repair. While successful in his hands, this program poses the risk of ligature cut-through and necessitates a second thoracotomy in the early weeks of life.

The outlook for a premature with such a grave anomaly is certainly ominous, regardless of what is done. Despite efforts to alert nursery personnel, both nursing and medical, to the necessity of early detection and treatment, one often finds that the infant has his lungs full of formula by the time a diagnosis is made.

It is the purpose of this report to describe a successful primary repair of esophageal atresia with tracheoesophageal fistula occurring in a premature infant of 3 pounds, 12 ounces birth weight, and to discuss some of the factors felt to be important in the successful result.

Case Report

A premature female infant of estimated 31- or 32-week gestation was delivered without incident other than for a comment by the attending obstetrician that placental dysfunction appeared to have caused premature labor. The infant cried fairly vigorously and showed good color, but she weighed only 3 pounds, 12 ounces.

During the first 24 hours of her life, glucose water was offered and was promptly regurgitated, with some coughing and cyanosis. Esophageal atresia was suspected, and a polyethylene catheter was passed. The tube seemed to pass freely into the stomach, and irrigation with sodium bicarbonate solution was accomplished without further incident. (In retrospect, the polyethylene tube must have curled up in the proximal esophageal segment.)

A case of esophageal atresia with tracheoesophageal fistula in a 3-pound 12-ounce premature infant, successfully treated by primary surgical reconstruction, is reported. Factors leading to the successful outcome are enumerated and discussed. A plea is set forth for continued diligence and a high index of diagnostic suspicion in those dealing with newborns, so that these cases may be detected and brought to surgery before gross pulmonary contamination has occurred.

Glucose water was again offered with similar results, so a Number 9 French soft catheter was passed on the second day of life. This time the obstruction was apparent, but in view of the initial experience, opaque contrast medium was injected and x-rays were obtained (Figure 1). The blind pouch was clearly out-

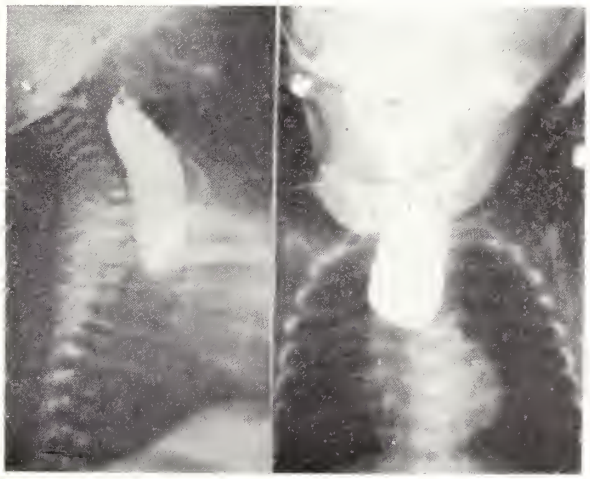

Figure 1. Pre-operative x-ray study showing blind esophageal pouch and air in stomach.

Case report from St. Elizabeth's Mercy Hospital, Hutchinson.

lined and the presence of air in the stomach was verified. It was then possible to remove the contrast medium by suction before further aspiration occurred. Examination of the infant at this time showed the color and general vigor to be still satisfactory, but a moderate number of coarse sibilant rales could be heard in both bases.

A period of preparation was embarked upon. The infant was propped in a sitting position and constant gentle suction was applied to the proximal esophageal pouch. Supersaturated moist atmosphere was provided in an Isolette, and 40 per cent oxygen was administered. Intramuscular chloramphenicol and tetracycline were begun, with maintenance amounts of fluid given subcutaneously. Blood was typed and cross-matched and an intravenous cutdown was prepared. Over the next 18 hours, the rales which had been heard at the bases practically disappeared.

Thoracotomy was then carried out, using nitrous oxide-oxygen anesthesia with curare and endotracheal intubation with a tube made of polyethylene. The azygos vein was divided and the proximal pouch mobilized. The lower segment was then developed and the tracheoesophageal fistula was closed with interrupted 5-0 silk sutures. It was then possible to bring the two segments together without tension and to carry out a two-layer anastomosis over a polyethylene tube, again using 5-0 silk. One end of the tube was brought out through the mouth and the other passed down into the stomach prior to completing the anastomosis. The chest was closed with a Number 18 French intercostal catheter in place for drainage by gentle negative pressure. Approximately 55 cc. of blood was lost and 75 cc. was given by transfusion. The necessity of re-expanding the right lung at frequent intervals because of hypoxia prolonged the operating time to some four hours. Despite the dangers of such pressures, it was often necessary to exert up to 50 mm. of mercury pressure on the anesthesia bag in order to inflate the lung.

At the close of the operation, the rectal temperature read 92° Fahrenheit, although the infant still exhibited feeble spontaneous respiratory efforts. It was felt that the hypothermia, while unintentional, was advantageous in many respects. Rewarming by immersion was carried out, and a rectal temperature of 97° Fahrenheit was gradually achieved over 1½ hours. Respiratory efforts gradually improved, but assisted respiration was carried out for four hours postoperatively. Extubation was then done and the infant was replaced in the Isolette, where 40 per cent oxygen and 100 per cent humidity were again employed. The sitting posture was resumed and continuous suction to the pharynx was again instituted. For 24 hours small amounts of saliva were suctioned, but then the saliva seemed to pass down the esophagus without difficulty. For 36 hours postoperatively small amounts of additional blood and fluid were given through the vein cutdown. Then 5 per cent glucose water, one ounce every three hours, was started down the indwelling gastric tube. The infant managed to dislodge the cutdown tubing soon thereafter, and all subsequent fluids were given through the gastric tube.

On two occasions severe cyanosis occurred, but was quickly reversed by removing thick mucoid secretions from the pharynx by suction. Postoperative x-rays of the chest showed good aeration and minimal evidence of pneumonitis. The rectal temperature remained stable below 101° Fahrenheit, and drainage from the intercostal tube was nil.

After the 48th postoperative hour, the infant began to cry much more vigorously and was placated only by the introduction of Olac formula through the gastric tube. Feedings of 5 cc. of 1:3 dilution were used initially and rapidly increased as it became apparent that the infant's appetite far exceeded this amount. By the seventh postoperative day, 2½ ounces of 1:2 dilution were being given every three hours. At that time the infant succeeded in pulling out the polyethylene gastric tube. As a test of swallowing function, glucose water was again offered in a regular nursing bottle and was freely swallowed. Regular formula feedings were then resumed and continued with no untoward effects. From this time on the infant gained rapidly in weight; on dismissal three weeks later she weighed 6 pounds, 1½ ounces.

Prior to dismissal, a thin barium swallow was given, which demonstrated considerable narrowing at the

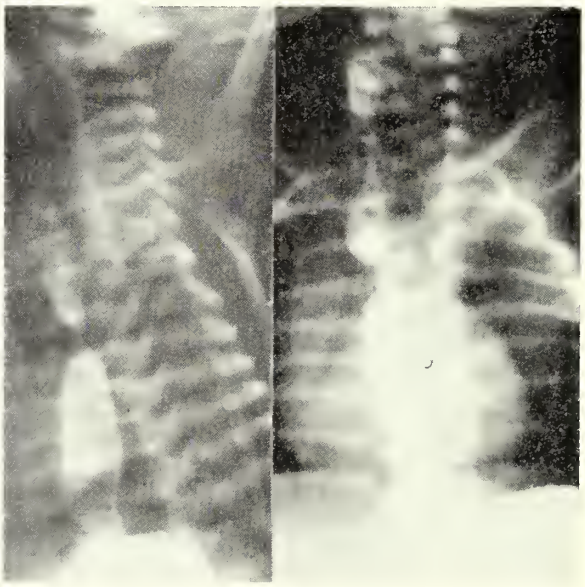

Figure 2. Postoperative barium study showing narrowing at the site of the anastomosis.

site of anastomosis (Figure 2), but since no regurgitation had occurred, consideration of dilatation was deferred. Except for an occasional brassy cough and a voracious appetite, the child seemed perfectly normal at the time of dismissal.

Comment

Although much has been written about the early detection of esophageal atresia, it cannot be emphasized too strongly that a high index of suspicion must be exercised toward any regurgitating newborn. The presence of even minute amounts of milk formula in the lungs increases the mortality rate in geometric proportion to the amount aspirated. In this instance, opaque contrast medium was used for diagnostic purposes, but such techniques certainly add to the hazards of aspiration and are not recommended. A film showing a radiopaque rubber catheter folded upon itself near the aortic arch and air in the stomach is all that is required for a presumptive diagnosis of esophageal atresia with tracheoesophageal fistula.

In the surgical management of prematures, teamwork is of the essence. The assistance of a pediatrician in the operating room is mandatory for the management of fluid and blood administration, close observation of body temperature and pulse, and generally to augment the functions of the anesthesiologist, whose hands are full maintaining adequate ventilation. Training in pediatric dosology and physiology are essential in this regard. Careful planning of techniques and a discussion of anticipated problems among the members of the team will smooth out many otherwise awkward moments.

Accurate estimates of blood loss must be kept by the gravimetric method. Each individual sponge should be weighed as discarded. Discrepancies of as little as 10 cc. of blood replacement can be critical in patients of such small body mass.

Lack of tension at the anastomotic site must be insisted upon, and this can usually be achieved by adequate mobilization of both esophageal segments. In so doing, the need for particular care in separating the membranous portion of the trachea from the proximal pouch deserves special emphasis.

The routine use of tracheostomy has been advocated. The possibility was considered in this case, and it might have avoided some of the airway difficulties encountered in the early postoperative period. However, it is our feeling that tracheostomy would have considerably complicated postoperative nursing care in a hospital which is without a medical house staff and where tracheostomy is a rare and perhaps poorly understood nursing problem. Furthermore, the increased hazard of pulmonary infection resulting from introduction of pathogenic organisms on the suction catheter is not to be gainsaid. The use of an endotracheal tube made of polyethylene rather than rubber was undoubtedly the major reason for the sparsity of tracheobronchial secretions seen postoperatively.

Concomitant gastrostomy is used routinely by many authorities and had been planned in this case. By the time the chest was closed, however, the operating time had exceeded four hours, the rectal temperature was dropping rapidly, and it was felt that the infant would not survive further prolongation of the operative procedure. Should it have proved necessary, it would have been tolerated much better some 48 hours later.

The restriction of intravenous fluids to minimal amounts was felt to be a vital point in postoperative management. This factor has been repeatedly stressed in publications on surgery of prematures and will not be further labored.

The 18-hour period of pre-operative preparation was felt to be most important in this patient, as evidenced by the clearing of pulmonary basilar rales. No rales of any consequence were heard in the lungs postoperatively.

Conclusions

In dealing with esophageal atresia, it is the treatment of choice to correct the entire anomaly at the first operative procedure, if this is at all possible. Prematurity naturally adds much to an already severe operative risk, but if the infant exhibits good vitality (admittedly a difficult factor to assess) and can be approached surgically before overwhelming pulmonary contamination has occurred, a successful outcome may sometimes be achieved. It is with this in mind that obstetricians and pediatricians are urged to maintain a high index of suspicion when confronted with a regurgitating newborn.

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100th Annual Meeting, Kansas Medical Society
Topeka May 4-6, 1959

Delayed Cystography

A Valuable Diagnostic Tool

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Introduction

The program of urologic investigation in children has in the past been much the same as that used in the study of adults. The urine has been studied, pyelography has been performed, either excretory or retrograde, and cystoscopy has been done. To this schedule there must now be added another essential examination. That examination, brought to our attention by Stewart in 1953 and termed by him at that time as delayed cystography, has done much to change our concepts of lower urinary tract disease in children and has led to improved methods of management.

Definition and Methods

Delayed cystography, also spoken of as retrograde cystography, is a specific test for vesicoureteral reflux and consists of two parts. The first component is x-ray visualization of the urinary bladder and kidney areas at intervals after the introduction of opaque medium into the bladder. The second component is x-ray visualization of the same areas during the act of micturition of the medium or immedately thereafter.

Our method has been to introduce by gravity through a catheter into the bladder a quantity of medium consistent with comfort but providing adequate filling of the bladder. Over-distention of the bladder should be avoided. Since the medium may remain in the bladder for 90 minutes or longer, the physician should remember to leave sufficient space for an additional natural increment of urine. The medium which we have employed has been 20 per cent urokon.

Exposures of films for the delayed cystogram series are made at intervals of 15 to 30 minutes, until 90 minutes have elapsed or until visualization of reflux has taken place. Reflux has made its appearance at a later time than 90 minutes, but one and one-half hours is a practical time to stop the series. At this point the child is urged (more often allowed!) to void, and a film is exposed during the act of micturition. A last film, the post-voiding film, is taken immediately following the act of micturition. For the child who is quite small or who is unable to cooperate, the voiding cystogram is dispensed with; in such a case great care is taken to obtain an immediate post-voiding film.

Presentation of Cases

Two cases are selected to illustrate the type of additional information which may be obtained by this method of study.

Case 1, B. T., a 12-month-old female child, was seen at the St. Joseph Hospital, July 3, 1956, with the chief complaint of recurrent pyuria. The child had been extremely ill with chills and fever on three occasions. The catheterized urine specimen showed innumerable pus cells. The urine culture was positive for E. coli and Aer. aerogenes. An excretory urogram indicated that there was good renal function bilaterally; moderate widening of the left ureter was present and there was Grade I pyelocaliectasis on the left (Figure 1, A). Repeated residual urine determinations varied from as little as a few drops to as much as 30 cc. Cystoscopy did not reveal any abnormality within the bladder, and no obstructive deformity was noted at the bladder neck.

Delayed cystography is a simple diagnostic procedure which is valuable in demonstrating certain conditions which other urographic procedures may fail to reveal.

A delayed cystogram was made. The 30-minute film (Figure 1, B) showed reflux on the left, amounting to massive proportions. The delayed cystogram clearly indicated the true extent of the condition and the need for remedial plastic surgery.

Case 2, J. S., a boy aged 8, was first seen on February 27, 1958. The history was given that urinary infections had recurred three times in the previous 10 months. A persistent pyuria was present.

An excretory urogram (Figure 2, A) had been made by the referring pediatrician. Quite properly attention had been directed to the left ureteropelvic junction, and the child was referred with the diagnosis of congenital left ureteropelvic junction obstruction.

Cystoscopy was performed and there was equivocal evidence of bladder neck obstruction. There was marked bas fond formation, and a large mouthed

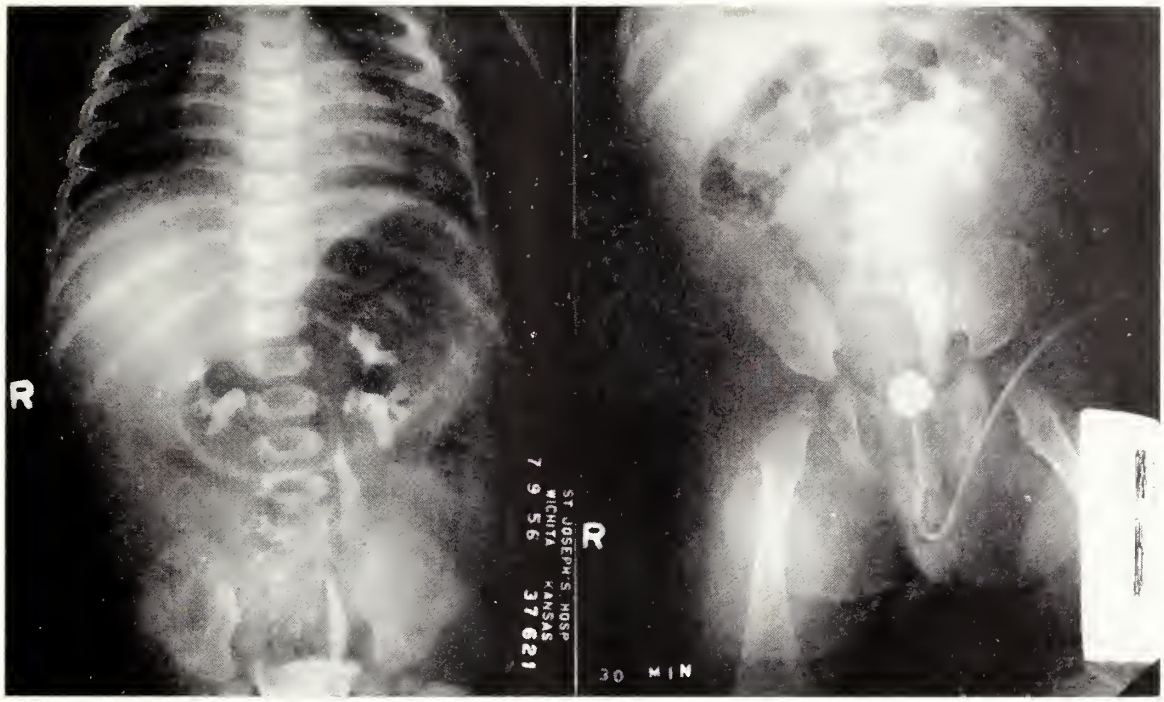

Figure 1, Case 1. A, at left, excretory urogram showing minimal pyelocaliectasis on the left and moderate widening of the left ureter. B, at right, the delayed cystogram, 30-minute film, demonstrating the actually massive dilatation of the left upper urinary tract.

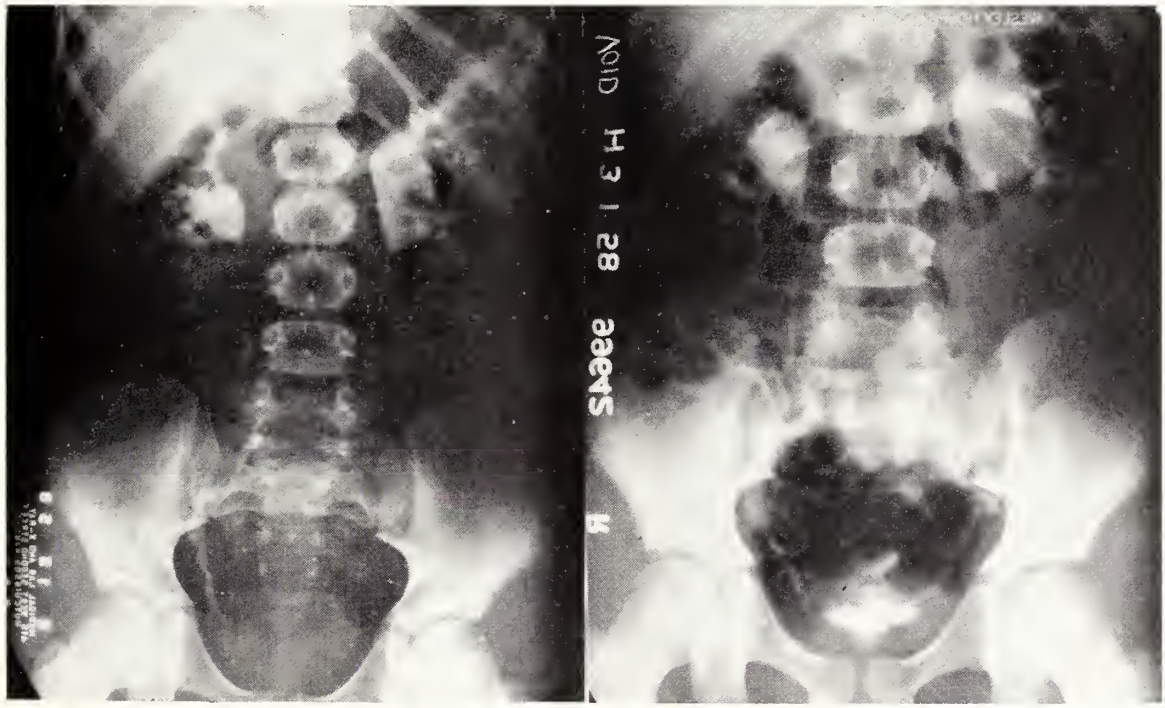

Figure 2, Case 2. A, at left, excretory urogram indicating the problem to be one of left ureteropelvic junction obstruction. B, at right, voiding cystogram demonstrating bilateral vesicoureteral reflux, irregular widening of each ureter, and moderate bilateral pyelectasis.

vesical diverticulum was present on the left side of the bladder; however, there was no trabeculation.

Residual urine determinations varied between 15 cc. and 45 cc. A cystometrogram was normal.

A delayed cystogram showed no reflux in any film up to the 90 minute film. However, the voiding cystogram (Figure 2, B) showed reflux of the dye up to both kidneys and dilated tortuous ureters. This film demonstrated the basic pathologic lesion to be at the vesical neck rather than at the left ureteropelvic junction.

Discussion

Vesicoureteral reflux does not occur in the normal urinary tract, according to Stewart.[2] Retrograde cystography was reported by Burns to be the most helpful of all urographic procedures in the study of vesical neck obstruction in children.[3]

Our experience has borne out the fact of the frequently reported inadequacy of excretory urograms in evaluating the extent of damage to the upper urinary tract in cases of bladder neck obstruction. Furthermore, we have corroborated the findings of others that upper urinary tract changes may exist in such cases although the excretory urograms are considered normal. Employing retrograde cystography routinely, St. Martin, Campbell, and Pesquier[4] found that 78.5 per cent of their cases with serious vesicoureteral reflux were considered to have normal pyelograms.

Delayed and voiding cystography is not only helpful in studying the upper urinary tract and detecting vesicoureteral reflux, it also gives information as to bladder contour and the presence or absence of residual urine. One cannot answer the question as to the presence of residual urine by simply passing a catheter following the patient's voiding. Due to vesicoureteral reflux, there may be a regurgitation of an ounce or more of urine to the upper urinary tract. In such a case, catheterization may show the bladder to be empty, and a serious situation will have remained undetected. In this instance the patient "voided" the residual urine into the upper tract.

In the past much has been said as to the force and size of the child's stream. It has been considered that a forceful stream of good size was evidence that all was well at the vesical neck. Our experience, and that of others, has shown that such visual evidence is not entirely reliable.

Treatment of bladder neck obstruction in children is not within the scope of this paper. More adequate treatment is being developed, largely as a result of better understanding of bladder and ureteral physiology. That there is good treatment for these children is not enough; early diagnosis of the disease process must be accomplished before irreparable damage to the upper urinary tract has taken place. Vesical neck obstruction in children is not a rare lesion. With an apparently ever expanding pediatric population, a watchfulness for the disease seems indicated.

Conclusions

Delayed and voiding cystography is a simple procedure. Such retrograde cystography is a necessary part of every pediatric urologic investigation. Retrograde cystography can give vital information which is not obtainable in any other manner. This examination does not displace other forms of urography; rather, it is an additional tool of examination.

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Americans have a tendency to operate on a frontier theory when the frontier has long since ceased to exist. In contrast, virtually all the European countries have deliberately conserved and utilized their land. . . . During the next 10 years we will need at least 3,000,000 acres for homes alone, and at least that many more acres for the facilities and roads which should service those homes.

—*Nels Severin*

"After some consideration of the various subjects of interest to the practical surgeon, your committee are of the opinion that the medico-legal subject of malpractice deserves, as much as any other, the attention of those of the medical profession who practice surgery . . . they trust that the increasing importance to the surgeon, its intimate connection with his every-day practice, the responsible and precarious position in which he is placed, and the facility with which the earnings of a lifetime may be swept from him for the most trivial and unavoidable cause, are sufficient reasons for the feeble efforts of your committee to try and awaken at least an interest in this matter. So liable is he who practices surgery to be called upon to defend his practice and his property against suits for alleged malpractice, that many of the most worthy members of the profession give up entirely the practice of surgery and devote their whole attention to other branches of the profession, not being willing to endanger their reputation and property, if fortunate enough to have any, by following a business, which, without any such risk, is one of poor compensation. . . .

"In cases of alleged malpractice the general rule is to charge the surgeon with *unskillful treatment and negligence.* The first will be very hard to remedy, for it would perhaps be impossible with any standard of medical education to make all practitioners skillful surgeons; but the second charge can, as a general rule, and ought to invariably be avoided. There is no good reason for negligence and carelessness, and if all those who practice surgery would attend their cases with that care and diligence which their patients have a right to demand, the cases of alleged malpractice, in the opinion of your committee, would not be one-half as numerous as at present, and the prejudice existing in the public mind to a great extent removed; the feeling of a patient towards his surgeon, in case of failure, would be *more lenient,* and it would be less difficult to mete out justice to those that really deserve punishment; in fact it would, to a very great extent, remedy the evil under which our profession is now laboring. As a general rule, the injustice done to any profession is caused directly or indirectly by the profession itself. If all members of *our* profession do their duty to the best of their ability and in a manner that matters of life and health demand, there is no doubt but it would rise far above its present position in the estimation of the people, and be protected to that extent it deserves by the law and the courts, notwithstanding *the parasitic burden it ever has to carry in the shape of charlatanism and quackery.*

"The law very justly requires necessary diligence and carefulness but does not require *extraordinary* skill. If it did, very few practitioners of medicine would be at all justifiable in attempting to practice surgery. Even he who when commencing practice has the best knowledge of anatomy and all that is generally learned in college and hospitals of the principles of surgery, finds after a few years practice in a town or county where there is but little surgery, that, for the want of experience, he becomes 'rusty'—awkward with the knife because he seldom uses it—has not that confidence in himself that a surgeon should have when called upon to treat a difficult case of fracture—because his general knowledge of fractures teaches him the uncertainty of *complete* success, and his own practice and observations have been too limited to form with *certainty* a prognosis in the case. And when in the course of several years practice, perhaps, he is called upon to treat a dislocation, although he may have been thoroughly posted as to the number and kind of dislocations laid down in the books, and all the differences between dislocations and fractures of the necks of the bones, yet he is in doubt as to the real nature of his case. Not for the want of anatomical or surgical knowledge, but for the want of just what cannot be obtained in an ordinary practice—*experience.* Hence we have no great surgeons, because we have no experienced surgeons, outside of large cities, hospitals, and armies. Yet, as a general rule, all men who practice medicine in this country practice surgery also, and if they exhibit an ordinary amount of skill, such skill as is usual among ordinary practitioners, it is very justly all the law requires."

Our present-day problems are not all new. These statements are from the report of the Committee on Surgery of the Kansas Medical Society, 1867.—*O.R.C.*

PRESIDENT'S PAGE

DEAR DOCTOR:

Health care for the increased population of aged persons has become foremost among the problems facing medicine today. This was evident at the clinical session of the A.M.A., recently held in Minneapolis, where a large proportion of the activities revolved around that theme. The House of Delegates of the A.M.A. requested each state medical society to engage actively in the exploration of this subject toward a possible solution that may be acceptable to the medical profession and to the public.

The Kansas Medical Society has already evolved, in outline form, a program that might accomplish this end. It was explored by the Executive Committee and subsequently approved by the Council. Details are now being worked out through repeated conferences with both Blue Shield and commercial insurance companies. The ideas have been presented to a number of neighboring state medical societies for their advice and assistance. As soon as concrete proposals can be established, the Kansas Medical Society will be fully informed. For now let me suggest the philosophy upon which the Kansas Plan is based. We shall be most grateful for your comments and suggestions.

When government assumes the obligation for health care over a segment of the population, there is a difference between a program in which government *supplies* or *purchases* this care. A second difference lies between the utilization of existing services for the establishment of a new program and the formation of new offices to perform a task that might be done by an already established agency. A third philosophical distinction can be drawn between a program wherein an entire category of the population is swept into a project, regardless of necessity, and a program in which benefits are disbursed according to need.

If voluntary health care can be purchased, not supplied by the government; if existing private agencies can be utilized and extended; if assistance in the prepayment of health care can be rendered according to the need for such assistance; and finally, if professional services can be rendered without loss of dignity, while preserving the private patient-physician relationship, it is our belief that governmental subsidies might be utilized as an aid in the solution of this problem. That, in its briefest form, is the foundation upon which the Kansas Plan is being designed.

Very sincerely,

Thomas P. Butcher M.D.

EDITORIAL COMMENT

1859-1959

For this, the centennial year of the Kansas Medical Society, the JOURNAL has chosen a cover that is in harmony with our past—rich, colorful, and symbolic of value.

There could be no substitute for a golden color. Throughout recorded history, because gold itself has been precious, its hue has been indicative of power, prestige, accomplishment and recognition. The Kansas Medical Society has power and prestige, can number countless accomplishments, and, in modesty, appreciates the recognition it has received. The color for the anniversary year cover was not in doubt—it *had* to be gold.

In considering style, the Editorial Board found itself reluctant to make changes, so it authorized only the addition of the words "1859-1959, 100 Years of Service" to the existing cover plates. The traditional old-fashioned stethoscope, long familiar to JOURNAL readers, and the usual typography were retained.

With this start for the momentous year the JOURNAL —only half as old as the Society—wishes the parent organization a successful and productive year in 1959 as the start of a second century of service to Kansans.

The Centennial

This is the beginning of the centennial year. On February 10 the charter issued by the Territorial Legislature will be 100 years of age and the Kansas Medical Society which was given "perpetual succession forever" will have survived its first century.

The centennial will be commemorated from now until the close of the annual session, to be held in Topeka, May 4-6, 1959. A special program based on a frontier theme is expanded to such magnitude that the meeting will take place at the Fairgrounds. It is not too early to make reservations for the most ambitious meeting this Society has ever held.

The centennial will be celebrated principally for the public benefit, however. Many events for public participation have been planned, some of which are recommended as county society activities.

It is hoped each society will, between now and May, perform at least one public service project of its own selection which will be a centennial commemoration. It can be directed into a variety of fields such as screening surveys, immunizations, public information meetings, health programs for schools, sponsorship of a campaign for worthwhile health activity, or many others.

Among additional planned events is a broadened support of science fairs to show the youth of this state the value of independent scientific exploration. A science fair is not significant for the contributions that are made nor because of the exhibit but for the fact that there has been individual curiosity sufficient for the student to experiment with the problem. It represents to the student not only the thrill of a discovery which in itself is worthwhile but it acquaints him with the scientific approach toward learning.

A Hall of Health filled with educational exhibits for the public will be open at the Fairgrounds in Topeka for two weeks or longer immediately prior to the annual session. Many professional societies, schools, hospitals, governmental and lay health agencies are contributing educational exhibits for this occasion. Schools will be invited to attend, and a serious attempt will be made to have a physician, preferably from the home town area, present whenever an organized group schedules a tour. This also is a public service project commemorating the centennial.

Already written, with the cooperation of the Committee on History, is a book, *A Century of Medicine in Kansas*. An increase of $5.00 in the dues for this one year will make it possible for each member of the Society to have a permanent copy of his own. The committee is impressed with the quality of the writing and recommends it for personal reading as well as for gift purchases.

The National Rural Health Conference, to be held in Wichita, March 5-7, 1959, is also a part of the Society's centennial celebration. This event of national significance will concentrate on problems of health peculiar to rural areas, and the part Kansas has played in achievements along this line will be much in evidence. It is hoped many Kansas physicians will attend to show medicine's support of this project and to actively participate during the planned discussion periods.

Increased activity is planned along lines of public information through the press, radio, and television as a further means of celebrating the centennial of this Society. In truth this celebration will consist of a brief pause for reflection upon past achievements and then a long hard look into the future with a determination that the greatest advance is still to come. It represents an opportunity to tell the public what medicine has done and what lies ahead. In this the emphasis is not only related to the treatment of disease but in the recognition that economics and other factors are also significant problems in need of solution.

Therefore, the centennial will be an important period. Its purpose is to acquaint the public with the true aims of medicine and with the real activities of organized medicine. The success of this venture can certainly be enhanced by the active participation of each county society. It is hoped this may be accomplished.

Medicare

Members of the Kansas Medical Society are becoming increasingly critical over the present status of the Medicare program. In the interest of keeping the Society informed, this explanation attempts to present two major points of view without entering into the validity of the arguments.

Some officials in Washington believe the government can operate health programs through medical facilities that are already established in service areas more economically than through private sources. Congress became convinced of this in the Medicare venture after noting a sharp rise in the cost of professional services since its inception. For example, obstetrical services accounted for almost 40 per cent of all Medicare claims. When the program began, normal deliveries cost an average of $251.83. By the close of 1957, the average was $288.45, and last year, although figures are not available, the charges increased sharply again.

Right or wrong, Congress saw costs rising above appropriation levels so acted to reduce participation by private physicians. This was much in evidence when Kansas negotiators worked on a new contract and fee schedule. One point is clear. The government has established to its own satisfaction that there are more economical means of providing health care to its wards than by contract with medical societies.

The second point of view comes from the physician who resents government regulations and the establishment of fees. Again, without entering the argument, here are some facts as they relate to Kansas. During the first year, Kansas physicians worked on a fee schedule which was negotiated between this Society and Medicare officials. Under this program each procedure was standardized and evaluated by agreement.

When the new contract was discussed, Medicare officials were hopeful that the fee schedule might be abolished and that the government could pay every doctor his own charges for patients within the $4,500 income category. They repeatedly expressed the philosophy that they did not wish to impose fees for services. They wanted to maintain the patient-physician relationship and preserve everything in the private practice of medicine except that the government would pay the charges and of course there would be the inevitable paper work.

Kansas negotiators used the Kansas Relative Value Scale as the basis for whatever schedule might be adopted. Medicare officers were immediately willing to set the point value at $4.00 and publish the new schedule. This would have reduced 10 per cent and raised 50 per cent of the fees of the previous schedule.

They preferred, however, to set their maximum considerably above that if the Kansas Medical Society would acquaint its members that their own individual charges would be paid. Should such charges be above the maximum, payment could still be made if the review committee felt the individual case justified the extra cost or if the charge actually was the normal fee for private patients within that income level.

The Executive Committee approved the no fee schedule plan because it allowed the individual physician greater freedom under the program. It was the studied opinion of this group that the government maximum, higher than the previous schedule in all but seven procedures, was high enough that Kansas physicians should rarely meet that restriction.

Someone was wrong. Within 30 days many Kansas doctors listed charges above the agreed maximum figure. So either the Kansas negotiators were unfamiliar with the normal charges made by Kansas physicians to their private patients whose earnings are less than $4,500 or physicians are charging more for government wards than they would for private patients.

As stated in the beginning, this is an effort to discuss two points of view and not intended to argue the validity of either. Regardless of which is correct, this fact is true—the private practice of medicine is now virtually out of the Medicare program. Many physicians will be relieved, but the consequences must not be ignored. The dependents of service men are still given health care. As they go in larger numbers to installations operated by the armed forces, more professional personnel will be required, and they can be obtained, until the government educates its own, only from private practice.

So the problem is not an easy one. The case is not all black nor all white. The solution must take into account expediencies, and when the final answer is written there will be a distinct awareness that practicing medicine for the government is different from private practice.

Driver error accounted for the vast majority of accidents last year, with excessive speeding being the greatest single error. A total of 13,200 died and 837,000 were injured in speeding accidents alone.

Maternal Mortality Report

The patient was an unmarried Spanish-American, para I, gravida II whose death was due, according to the certificate, to "coronary thrombosis" and "toxemia due to dead fetus." The patient did not report for care until the last month of her pregnancy, and her mentality and language difficulty made it difficult to obtain an adequate history. The patient's first child had been born prematurely and died at the age of nine months.

There was no record of a detailed examination initially, but blood pressure was noted to be 130/85, hemoglobin was 75 per cent and the Wassermann was negative. There was no record of weight but indication that it was in excess of 200 pounds. The fetal heart was not distinctly heard but was thought to be about 150. Recorded pelvic measurements were: interspinous 25; pubis to fifth lumbar 18.5; and bispinous 9. There were only two prenatal visits.

On her estimated date of confinement, the patient presented herself at the hospital having contractions every 15 minutes. The membranes had ruptured previously, the time being unknown. Her temperature was 99.4 at that time and there was a notation that the pelvis seemed small. There was no edema or albuminuria. The thickness of the abdominal walls obscured the size of the baby and presentation. Fetal heart tones could not be heard. Labor progressed for some 30 hours, after which vaginal examination indicated complete dilatation of the cervix. However, the head did not descend and three doses of Pituitrin in amounts of 2 to 3 minims were given. This brought the head to the lower pelvis, but as soon as contractions softened the head retracted. An attempt was made to deliver the patient by forceps, but this was unsuccessful and she was returned to her bed. X-rays of the abdomen were obtained 36 hours later, at which time a large fetal head with overlapping of the cranial bones was seen and a small android pelvis was diagnosed. Cesarean section was then done under open drop ether anesthesia (of which no record was kept), and delivery of the infant was accomplished 67 hours after admission to the hospital.

It was estimated that the infant had been dead for some six or seven days, there being a quart of putrid, meconium-colored fluid in the abdomen. The placenta was firmly attached and the cord was wrapped tightly around the baby's neck seven times. The patient received a pint of blood postoperatively and was given a combination of penicillin and streptomycin every eight hours. Fluid intake consisted of 1,000 ccs. of 5 per cent glucose in saline intravenously. The course was generally downhill with distention, vomiting, dark green vaginal drainage, and a hectic temperature. Some 38 hours postoperatively, the patient complained of pain in the left chest and shoulder with dyspnea, and these symptoms increased until death occurred some two hours later.

Committee opinion: Points of significance as developed from the committee's discussion of this case were as follows: (1) It was a case of previously unrecognized cephalo-pelvic disproportion and a dead fetus in a patient septic on admission to the hospital. (2) Prolonged labor (30 hours first stage, 36 hours second stage). (3) Classical section in the face of severe sepsis. (4) A septic postoperative course with death due probably to peritonitis and generalized sepsis with a probable pulmonary embolism as a terminal contributant.

Classification: Maternal death, obstetrical, preventable.

One of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas.

Tumor Conference

Osteogenic Sarcoma of the Radius

Edited by THOMAS J. FRITZLEN, M.D.

Dr. Friesen (Moderator): This case involves the problem of diagnosis of tumors and other diseases of bone.

Dr. Peltier: This 14-year-old boy developed pain and swelling in the left wrist five weeks prior to admission to this hospital. He was active and frequently helped about his farm home, and he felt that he had suffered a sprain of the wrist although he could recall no specific injury. The pain and swelling were persistent and after three weeks he went to his family physician, who examined him, took an x-ray, and referred him to an orthopedist in a near-by city, who in turn referred him to this hospital. At the time of admission his left wrist was swollen, tender, and painful. The area of swelling was over the distal end of the left radius and was firm, non-pitting, and non-fluctuant. There was no lymphadenopathy and there were no other abnormal physical findings.

Dr. Friesen: What are the x-ray findings?

Dr. Williams: X-rays of the left wrist show soft tissue swelling, a somewhat obscure medullary outline in the distal portion of the radius, and evidence of periosteal reaction about the distal portion of the radius with calcification and bone formation in the periosteum (Figure 1). The markings of the cortical surface are also somewhat indistinct. The diagnostic possibilities include osteomyelitis, possible recent trauma to the soft tissues, and most likely, a malignant tumor of bone extending into soft tissue. An x-ray examination of the chest was normal.

Dr. Peltier: In the patient with a possible bone tumor, chest x-ray is of utmost importance because in such tumors blood borne pulmonary metastases occur early. The serum alkaline phosphatase reaction is elevated in approximately 50 per cent of patients with osteogenic sarcomas. In the present case the alkaline phosphatase was within normal limits. The next step was biopsy of the radius under anesthesia and with a tourniquet to provide a bloodless field. A mass elevating the periosteum was found about the distal radius. It was firm and white, and in some places it penetrated the periosteum and invaded surrounding soft tissues.

Cancer teaching activities at the University of Kansas Medical Center are aided by grants from the National Cancer Institute, U. S. Public Health Service, and the Kansas Division of the American Cancer Society. Dr. Fritzlen is a Trainee of the National Cancer Institute.

Dr. Friesen: Is there a real hazard of venous embolism occurring during the biopsy procedure?

Dr. Peltier: Theoretically, one would apply a tourniquet, obtain the biopsy, get a frozen section diagnosis, and proceed with amputation if indicated. However, the diagnosis of bone tumors is often difficult, even for experienced pathologists. With few exceptions, I believe it is preferable to have permanent tissue sections with an opportunity for adequate microscopic study and consultation among the pathologist, the radiologist, and the surgeon rather than to

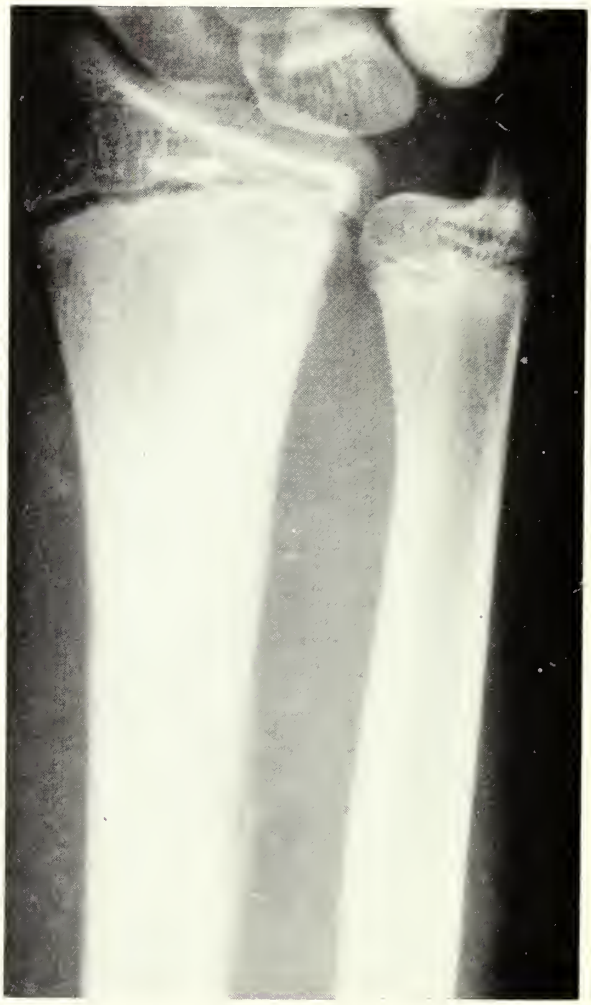

Figure 1. X-ray of osteogenic sarcoma involving distal radius with loss of medullary outline.

risk amputating a limb because of an incorrect diagnosis. Biopsy in a bloodless field provided by a tourniquet has not been proved to cause significant venous embolism of tumor cells.

Dr. Friesen: Is the x-ray picture sufficiently specific for diagnosis to eliminate the need for a biopsy?

Dr. Tice: It is best to obtain a histologic diagnosis from the pathologist. The present case presents an atypical picture for osteogenic sarcoma because of the location. The most common site for an osteogenic sarcoma is in the lower femur, the upper tibia, and the upper end of the humerus. In a recent review by Dahlin[1] of 2,276 bone tumors at the Mayo Clinic, 490 were osteogenic sarcomas and only six of these arose in the lower forearm or wrist. The classic picture is that of bone destruction with an area of bony defect in the cortex. Some cases present bone formation in a sunburst pattern in the area of defect, and often there is a triangular area of new bone formation elevating the adjacent periosteum known as Codman's triangle.

Dr. Friesen: I would like to repeat this important point in tumor surgery, that in nearly every instance where removal of a tumor is intended, there should be an adequate histologic diagnosis of a biopsy specimen. May we have the pathologist's findings?

Dr. Mantz: The gross surgical specimen of the distal radius shows the substance of the bone to be composed of dense, white, almost eburnated tissue. In one area the cortex is disrupted and the overlying periosteum is elevated by softer white tissue producing at the epiphyseal line a triangular area which is a gross counterpart of the so-called Codman's triangle.

Sections of soft tissue at the time of biopsy show relatively cellular tissue with fairly plump spindle shaped cells occurring in a non-organoid pattern. These occur singly and appear to be elaborating a mesh-work of dense collagenous tissue and osteoid. Section of decalcified bony fragments shows spicules of relatively normal appearing bone with atypical and poorly organized new bone deposited on them. These have a lattice work pattern and resemble highly abnormal osteoid tissue. This abnormal type of bone formation alone is considered by some as diagnostic of osteogenic sarcoma (Figure 2). In another section, one wall of a blood vessel appears to be composed of tumor cells, which has obvious and ominous prognostic implications (Figure 3). This is an osteogenic sarcoma.

There are two peaks of incidence of these tumors, one at ages 10 to 25 and a second much lesser peak in the 50's and 60's. The latter is perhaps related to the occasional degeneration of lesions of Paget's disease into osteogenic sarcoma. About two-thirds of the patients are males. One known etiologic factor is the role of radioactive substances in the production of

Figure 2. Neoplastic bone, indicated by arrow, deposited on a normal bone trabeculum.

Figure 3. Arrow indicates tumor involvement of vessel wall.

osteogenic tumors, recognized since the study by Martland on the incidence of bone tumors in the radium watch-dial painters in New Jersey.[2, 3] In addition to the common sites previously discussed, osteogenic sarcomas may occur in any of the long bones, particularly at their ends, and also in the mid shaft of long bones and even the flat bones. Most commonly they are endosteal in origin, though occasionally a juxtaosseous osteogenic sarcoma may arise, apparently from a fetal rest. These tumors occasionally are multicentric.

Tumor spread occurs by three routes: (1) by direct extension along the medullary canal, (2) by extension through the cortex, either through the Haversian system or by destruction of cortical bone, and (3), most important, by venous invasion and metastases to the lungs. Metastasis to other organs does occur but is distinctly less frequent than in other types of tumors. The advancing edges of the tumors are softer than the more central portions, which tend to be calcified and ossified. Therefore, a biopsy at the advancing edges of the tumor provides a more suitable specimen for prompt histological diagnosis.

Dr. Peltier: Another aspect of these tumors is the tendency to form skip areas as extension occurs up and down the medullary canal. These occur as microscopic foci of tumor in the medullary cavity away from the tumor with apparently normal marrow in between. I have seen two instances in which amputation was carried out proximal to the tumor through normal bone and there later occurred a local recurrence in the medullary cavity proximal to the line of amputation. It is for this reason, therefore, that the rationale of therapy of such tumors is for amputation to be carried out through the bone above the one involved. If the lesion should occur in the radius, as it did in the present case, amputation would be carried out through the humerus. Similarly a tumor of the tibia would require amputation through the femur, and a tumor of the femur, ideally, would be disarticulated at the hip.

Medical Student: Dr. Peltier, if the patient has a tumor in the femur, would you do a disarticulation through the hip in every case?

Dr. Peltier: Not in every case, but in most cases a disarticulation would be done. If amputation is done, it is carried out through the lesser trochanter and is a simple and sometimes more satisfactory procedure than disarticulation.

Medical Student: What do you do then about a weight-bearing stump?

Dr. Peltier: In cancer surgery one's first concern cannot be with reconstruction. If you give this patient a usable stump, he may be able to use it only two or three years and then succumb to his disease because of an inadequate initial surgical procedure.

Dr. Friesen: What would have been done to this patient if he had demonstrable pulmonary metastasis at the time of his initial appearance here?

Dr. Peltier: I would have referred him to the radiologist for x-ray therapy. Amputation could not hope to effect a cure and would be of palliative value only if the primary tumor became a large, painful, necrotic mass which rendered the limb unusable.

Dr. Friesen: Dr. Tice, what place does radiation have in the treatment of this disease?

Dr. Tice: I do not believe that radiation has ever cured osteogenic sarcoma. However, in patients with pulmonary metastases, I believe that radiation will give some relief of the distressing symptoms of cough and dyspnea.

Medical Student: With what other diseases might an x-ray picture like this be confused?

Dr. Tice: In addition to osteogenic sarcoma or other bone tumors, osteomyelitis might be considered. Also there are cases on record where amputation has been carried out on patients with syphilis and with scurvy, either of which may produce a similar appearance at the ends of long bones.

Dr. Peltier: Recent experimental studies have suggested that antigen-antibody relationships play a part in tumor growth and spread. It has been observed that when a large primary tumor is removed, there is often a rapid growth of metastatic deposits. Perhaps with this in mind, one group has undertaken to treat the primary tumor at first with massive doses of radiation and then carry out amputation at a later date. The role of a large primary tumor in stimulating antibody production and thus depressing the growth of metastatic deposits is not established at the present time, however.

In regard to prognosis in these tumors, a paper by Ferguson[4] approximately 20 years ago reported a slightly increased survival rate in patients in whom surgery was postponed six months after their initial diagnosis. After this interval, if they had no evidence of metastasis, operation was carried out. This, of course, excluded those patients who developed a metastasis between the time of the initial visit and their second appearance. The point we can gather from this perhaps is that there is variation in the biological activities in tumors of the same histologic type.

If this patient should return in six months and have a single pulmonary metastasis, I might refer him to a thoracic surgeon rather than a radiologist. Recent reports[5, 6] of patients with metastatic tumors of various sorts to the lungs, some of which were osteogenic sarcoma, have shown a survival rate of up to 15 per cent when thoracotomy and local excision of the metastatic deposit was carried out. The later the metastasis occurs the more likely it is to be a single metastasis of a lower grade of malignancy, and perhaps more amenable to excision. Studies of osteogenic sar-

coma show a higher survival rate in tumors occurring in the distal portions of the extremities such as the hands, wrists, and feet than in more proximal situated tumors. In contrast to the generally quoted figure of approximately 5 per cent five-year survival in osteogenic sarcoma, more recent workers using various techniques of treatment have obtained five-year survival rates of between 10 and 20 per cent.[1]

Dr. Hardin: Are angiographic studies helpful in demonstrating skip areas within the medullary cavity, enabling one to carry out a less extensive resection?

Dr. Peltier: Angiographic study of osteogenic sarcomas has demonstrated increased vascularity with a more rapid transport from the arterial to the venous side and with apparent arteriovenous fistulas in these tumors.[7] This is supported by clinical evidence of increased skin temperature over such tumors. However, skip areas are usually microscopic deposits of tumor, and angiography would not necessarily show them.

Dr. Friesen: In summary, this case of osteogenic sarcoma arose in an unusual location but presented many of the features of such tumors. The principles and methods of treatment and the importance of correct and adequate diagnosis have been discussed. In contrast to the generally held concept, a significant percentage of these patients may survive this disease.

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Fluid and Electrolyte Course

A course on fluid and electrolyte balance, under the sponsorship of the Midwest Medical Research Foundation, will be presented at the offices of the Sedgwick County Medical Society, Wichita, February 7, 8, and 9. Dr. Belding H. Scribner, assisted by Dr. Richard Paton and Dr. Alfred Skinner, of the faculty at the University of Washington, will present the course.

Morning sessions on February 7 and 8 will be devoted to lectures and the morning session on February 9 and all afternoon sessions to practical application of the principles to specific cases. Attendance at morning sessions will be unlimited, but afternoon sessions will be open only to the first 40 registrants. No registrations will be accepted for afternoon sessions alone. The fee for attendance at morning sessions will be $10, for attendance at both types of sessions $25. Residents and interns may register, on a nonparticipating basis, for $1.00.

The American Academy of General Practice will allow 20 hours credit in Classification II to those present for the full course.

Applications should include name, address, year of graduation, name of school granting degree, and type of practice. The information, along with registration fees, should be sent to Midwest Medical Research Foundation, 3241 Victor Place, Wichita 8, Kansas.

Midwest Cancer Conference

Eight guest speakers will present a scientific program at the Eleventh Annual Midwest Cancer Conference, to be held at the Hotel Broadview, Wichita, March 26 and 27, according to Dr. David H. Ruhe, chairman of the Program Committee.

The tentative program includes the following: "The Natural History of Cancer," Dr. Stanley P. Reimann, Institute for Cancer Research, Philadelphia; "Ultramicroscopic Cell Structure and Its Relation to the Study of Cancer" and "Ultramicroscopic Study of Viruses and Their Possible Relationship to Cancer," A. F. Howatson, Ph.D., University of Toronto; "Studies on the Etiology of Human Leukemia," Dr. Clifton D. Howe, University of Texas M.D. Anderson Hospital and Tumor Institute; "Current Concepts in the Etiology of Mouse Leukemia," Charlotte Friend, Ph.D., Cancer Research Unit of Memorial Center for Cancer, New York City; "Treatment of Cancer in Children" and "Management of the Patient with Advanced Cancer," Dr. Ian Macdonald, University of Southern California School of Medicine; "Metabolic Disturbances in the Cancer Patient," Dr. Alfred Gellhorn, College of Physicians and Surgeons, Columbia University; "The Role of Endocrines in Human Neoplasm," Dr. Edward A. Gall, University of Cincinnati College of Medicine, and "Developments in Radiation for Cancer Treatment," Dr. J. W. J. Carpender, University of Chicago.

The program will also include panel discussions, question and answer periods, luncheon sessions, and a dinner meeting open to physicians' wives and guests.

An invitation to attend the conference is extended to all physicians by Dr. Larry E. Vin Zant, president of the Kansas Division of the American Cancer Society.

THE MONTH IN WASHINGTON

Editor's Note. The following summary of Washington news was prepared by the Washington office of the A.M.A. for distribution to state and regional medical journals.

It is now well-recognized that the new 86th Congress, heavily spiced with newly-elected Democratic liberals, will set out to make an impressive record for itself. Health legislation will not be neglected.

On the basis of developments last session, and the known interests of many new members of Senate and House, here are the health areas where intensive activity is assured, with prospects for enactment of a number of bills either this year or next year, the final session of the 86th and also a presidential election year:

Social Security. Labor has announced that it will work this year for substantial changes in social security, the most important being a program for hospital-nursing home care for the aged and other beneficiaries. On this the unions are supported by the Democratic Advisory Council, which reflects the views of the Truman-Stevenson-Butler element of the party but generally finds itself to the left of Senate Leader Johnson, House Speaker Rayburn, and some other congressional leaders.

Under social security, the AFL-CIO and the Democratic Council also would lower or drop the age 50 requirement for disability payments, increase OASI taxes, bring more income under the taxes, and raise benefits all up and down the line.

American Medical Association, joined by scores of other associations and individuals in health and other activities, successfully opposed the social security hospitalization plan last session. They are prepared to wage just as determined a fight this year.

Aid to Medical Schools. An effort was made in Congress last session to provide grants to medical schools for building and equipping teaching facilities, to complement the research grants program already in effect. While the administration supported the attempt, it did not throw behind it all the energy it is expected to exert this year. Top officials of the Department of Health, Education, and Welfare, from Secretary Flemming on down, have been talking up aid to medical schools all fall. When the time comes to testify, they will be strengthened by the activities of a new committee appointed to look into the schools' problems, as well as by the Bayne-Jones report which calls for the immediate start on construction of between 14 and 20 medical schools.

American Medical Association supports construction and equipment grants for medical teaching facilities. Strongest opposition this year is likely to come from some influential members of Congress, who succeeded in bottling up the legislation last session.

The Keogh bill. Last session legislation to permit the self-employed to pay taxes on money withdrawn from retirement funds passed the House but failed to get out of committee in the Senate. Its sponsors, including the A.M.A., are hopeful that the Senate objections can be removed this year.

Medicare. Congressmen already have received protests from back home about restrictions imposed on the civilian phase of Medicare, mostly the channeling of service families to military facilities. This issue is sure to come up when appropriations hearings start on the Defense Department's budget. It may come up sooner, if Medicare runs out of money and requires a deficiency appropriation.

The Doctor Draft. The special draft, which hasn't actually been used in two years, may be invoked by the Defense Department this spring if there isn't a better response on the part of interns and residents to appeals for volunteers. Should the law have to be used this year, the Defense Department will have a pretty convincing argument that it should be extended beyond its scheduled expiration date of next June 30.

Medical Research. While the Federal government currently is spending at a rate of more than $324 million on medical research through the National Institutes of Health, a still higher record of appropriations is in prospect for next year. The Senate Appropriations Committee has announced that never again will the pace of research be slowed through lack of dollars. This is also the attitude of the AFL-CIO and the Democratic Advisory Council, among other groups. The pattern usually is for the House to increase moderately Budget Bureau figures for medical research, then for the Senate to vote large additional increases. The House then generally agrees to spend close to what the Senate wants.

Contributory Health Insurance for Federal Workers. A new effort to bring about a contributory health insurance program for civilian federal workers is expected, with federal employee unions leading the drive.

Other Prospects. A number of amendments will be proposed for the Hill-Burton act. Some effort will be made to strengthen the law under which labor-management health and welfare funds must keep records and file reports. Hospitals are looking forward to low-cost loans under a community facilities bill and nursing homes to mortgage guarantees. The feud over the VA's closing of 5,000 beds likely will be renewed.

Diabetes

The Search for the Anti-Diabetic Hormone

GERALD R. KERBY, M.D., ***Bethesda, Maryland***

The history of diabetes dates to antiquity. The Papyrus Ebers, one of the oldest medical documents, dating from approximately 1500 B.C., refers to polyuria, by which the Egyptian physicians may have meant diabetes.[1]

Areataeus, the Cappadocian, who lived in the second or third century A.D., wrote a classic account of the clinical syndrome of diabetes, the word stemming from the Greek word which signifies a siphon.[2]

Many of the great medical writers over the centuries discussed diabetes. There were almost as many theories of the cause of the disease as there were writers. The treatments were many, varied, and unsuccessful.

Before the experimental establishment of the relationship between the pancreas and diabetes mellitus, it had been noted that lesions of the pancreas were associated with diabetes mellitus. Cowley, an English physician, in 1788, was possibly the first to point this out in the case of a diabetic in whom autopsy revealed a sclerosis of the pancreas. Richard Bright, the English clinician, in 1833, and Bouchardat, in 1851, noted the simultaneous occurrence of pathologic changes in the pancreas and diabetes mellitus.[3]

The first observations on the effect of removal of the pancreas in animals were made before the relationship of the pancreas to diabetes was suspected.

Johann Conrad Brunner experimentally excised the pancreas in dogs in 1682, noting no apparent ill effects. In one of the excisions he noted that the dog developed extreme thirst and polyuria.[4] Albrecht von Haller, the German physiologist and historian, also removed the pancreas experimentally without apparent ill effect. Klebs and Munk, in 1869, were probably the first to attempt extirpation experiments to try to demonstrate a relationship between the pancreas and diabetes. Their results were also negative. The failure of these early workers was no doubt due to incomplete removal of the organ.[5]

In 1889, Joseph von Mering and Oscar Minkowski of Strasbourg made the brilliant discovery that complete and total removal of the pancreas in dogs invariably caused severe and fatal diabetes.[6]

von Mering at the time was working on the problem of fat absorption in diseases of the pancreas. At a fortuitous meeting, von Mering mentioned an unsuccessful attempt to exclude the pancreatic juice from the intestine by ligation of the duct. Minkowski suggested removing the pancreas, but von Mering believed this impossible. Minkowski, however, believed he had sufficient surgical skill and offered to attempt the operation on a dog. Twenty-four hours later, assisted by von Mering, he successfully extirpated the entire pancreas with survival of the animal. The next day it was noted that the dog repeatedly emptied its bladder. On an impulse Minkowski examined the urine for sugar and found the sugar content to be more than ten per cent. He then operated at once on several more dogs. All developed severe diabetes.[7]

The experiments of von Mering and Minkowski were repeated and confirmed by many investigators. It was found that total removal of the pancreas in the dog, cat, and other mammals always produced severe and rapidly fatal diabetes.

von Mering and Minkowski felt that the pancreas controlled sugar metabolism either by destroying a ferment or poison which caused the elimination of sugar or that destruction of sugar in the organism was a normal function of the pancreas and that experimental diabetes was due to cessation of a specific, hitherto unknown function of the pancreas.

At the time of this discovery little was known of the internal secretion of ductless glands. In 1893, Lépine repeated the experiments of Minkowski and concluded that the pancreas produced an internal secretion containing a ferment with glycolytic power which passed from the pancreas into the blood and was taken up by the leucocytes.[8]

Proof of the carbohydrate regulatory power of the pancreas was provided in 1892 by Minkowski, and independently by Hédon. In their transplantation experiments, a portion of the pancreas was drawn out of the peritoneal cavity and placed beneath the skin of the anterior abdominal wall. After the blood supply had been established, the remainder of the pancreas was removed without the appearance of diabetes in the dogs. If the graft was later removed, typical symptoms of diabetes developed.[9, 10]

Forschbach, in 1909, using the method for producing parabiosis in two animals by uniting their abdominal walls with communication between their

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This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Kerby is now serving his internship at the U. S. Naval Hospital, Bethesda, Maryland.

peritoneal cavities so that there was an exchange of blood and lymph but no transfer of nervous impulses, discovered that parabiosis of a normal animal with a depancreatized animal either prevented diabetes or reduced glycosuria to one of slight degree.[11]

These and other experiments added evidence to the theory that an internal secretion elaborated from the pancreas was responsible for the regulation of carbohydrate metabolism. This theory became generally accepted. Pflueger, however, opposed this view and stated that proof of the existence of a pancreatic internal secretion depended on alleviation of the symptoms of diabetes by an extract of the pancreas in the same manner that symptoms of myxedema were relieved by thyroid extract.[12]

These experiments furnished strong evidence that the pancreas produced a substance necessary for the maintenance of normal carbohydrate metabolism. It was already known that the pancreas formed an external secretion of enzymes necessary for digestion. It hardly seemed possible that the cells responsible for secreting enzymes could also be responsible for secreting the substance regulating carbohydrate metabolism.

In 1869, Paul Langerhans, in his doctoral dissertation, described the presence of certain epithelial tissue in the pancreas which was different from the acinar cells and the ducts which conveyed the external secretion to the duodenum. He merely described these cells but did not guess at their significance.[13]

The relationship of these "islands of Langerhans" to the internal secretion of the pancreas was first suggested by Laguesse in 1893. He did not believe that the islet tissue was independent of the acini but that a physiologic mechanism controlled the relative amounts of each secretion.[14]

Edward Schafer, in an address to the British Medical Association at London in 1895, stated his belief that human diabetes was caused by a deficiency of the secretion of the islet tissue brought about by some pathologic change in the islets.[15]

Schulze and Ssobolew, in 1900, found that by blocking the pancreatic duct with paraffin there resulted a sclerosis of the acinar tissue of the pancreas with little damage to the islets. Diabetes did not develop in these animals.[16, 17]

Opie, in 1900, described the presence of hyaline degeneration of the islands of Langerhans with normal secretory acini in a case of diabetes.[18]

MacCallum, in 1909, ligated the ducts draining the tail one-third of the pancreas in dogs. After seven months he removed the remaining two-thirds, the operation being followed by a slight, transitory glycosuria. Three weeks later he removed the degenerated one-third, a procedure followed by fatal diabetes. The atrophic one-third was composed of enlarged islands of Langerhans and remnants of pancreatic ducts.[19]

Lane and Bensley, using special staining techniques, demonstrated that the islets were entirely separate from the acinar tissue. Lane also described two types of islet cells which he called alpha and beta.[20, 21]

Kirkbridge, using Lane's staining technique, repeated and confirmed MacCallum's work.[22]

The final proof that the islets liberated the antidiabetic substance came after the discovery of insulin when Macleod, in 1922, working with teleostean fishes in which the islet tissue is anatomically separate from the acinar tissue, found the islet tissue to be a rich source of insulin while no insulin could be extracted from the acinar tissue.[23]

From the work of von Mering and Minkowski there appeared to be great promise that the mastery of diabetes was imminent. Encouraged by the results with dessicated thyroid or thyroid extract in the treatment of myxedema, many thought that pancreatic extract must surely bring relief in the treatment of diabetes.

Minkowski himself, in 1892, after completing his experiments on extirpation, prepared pancreatic extracts which he injected into depancreatized dogs without any noticeable change in their diabetes.[24]

In 1893 Mackenzie fed pressed pancreas juice to two diabetic patients. He thought there was some subjective improvement but there was no change in the urine sugar or specific gravity.[25] Sibley, Wood, and others also attempted oral administration of raw pancreas, pressed pancreas juice, pancreatic extracts, and cooked pancreas with either no success or questionable success.[26, 27]

In the years 1895 to 1898, many reports appeared on numerous attempts to treat diabetes by oral administration or rectal instillation of extracts, juices, and raw pancreas. Spillman, in 1896, reported treatment of two subjects by injection of pancreatic press juice with only slight decrease in glycosuria.[28]

Hougounenq and Doyon, in 1897, published a well controlled series of experiments using pancreatic extracts prepared in a variety of ways. They were unable to demonstrate any beneficial effect of oral administration of these extracts to diabetic dogs. This work considerably discouraged the use of pancreatic materials of any kind by mouth.[29]

In 1898 Blumenthal tested the juice pressed from the pancreas after removing the protein material by addition of alcohol. Given intravenously it killed his dogs; given subcutaneously it resulted in local necrosis. In one human case he reported a 40 per cent increase in the utilization of sugar. He was definitely on the right track but was discouraged by toxic side effects.[30]

In the decade from 1898 to 1908, scientific interest in the treatment of diabetes by pancreatic extracts waned. In 1907 Rennie and Frazier reported on the occurrence of a separate pancreatic organ for internal secretion in teleostean fishes. They tried feeding this islet tissue to diabetic patients but observed no beneficial effects.[31]

Zuelzer, in 1908, reported his work on the preparation of an anti-diabetic hormone from the pancreas. The word "hormone" had been introduced a few years previously by Bayliss and Starling in connection with their work on secretin. Zuelzer felt that previous attempts to prepare a potent pancreatic extract had failed because of the condition of the pancreas at the time of extraction. He took the pancreas at the height of digestion, tied it off for 90 minutes, then removed and extracted it, squeezed out the juice, precipitated the proteins with alcohol, and administered the alcohol-free extract subcutaneously and intravenously. In two experiments in dogs and in eight human patients he demonstrated that his extract reduced glycosuria and acidosis.

The extract had severe toxic side-effects, however. Zuelzer delayed publication of his work for three years in the hope that a non-toxic preparation could be developed. Even with the assistance of the Physiological Institute of the University of Berlin and the chemists of the Schering Company, he was unable to lessen its toxicity. Forschbach, in 1909, used Zuelzer's extract and demonstrated its striking anti-diabetic action on depancreatized dogs. He treated two human patients with some success, but both experienced high fever and other toxic effects. Zuelzer and Forschbach believed that the anti-diabetic effect may have been due to febrile reactions rather than the specific action of the hormone. There can be no doubt, however, that they were in possession of a potent extract.[32, 33]

Scott, in 1912, attempted to ligate the pancreatic ducts and eliminate the external enzymes by degeneration of the acinar tissue in the manner subsequently used by Banting and Best. He was unable to occlude the ducts completely, hence never prepared an extract of degenerated pancreas. He then tried extraction with alcohol, but these extracts proved unsatisfactory because of depressor substances. He also prepared an acidified aqueous medium which lowered the dextrose:nitrogen ratio significantly in depancreatized dogs. Scott unfortunately concluded that the effects produced by his extracts were not necessarily due to the presence of the internal secretion of the pancreas.[34]

Murlin and Kramer, 1913-1916, prepared saline and alkaline extracts of cow pancreas which, when injected into depancreatized dogs, caused some decrease in urine sugar. They later found that administration of alkaline Ringer's solution produced a similar decrease in glycosuria. They also prepared acidified extracts which lowered urine sugar and raised the respiratory quotient in depancreatized dogs. The use of acidified extracts was not reported until many years after the work of Banting and Best.[35, 36]

Kleiner and Meltzer, in 1915, prepared emulsions of dog pancreas in saline solution and observed a temporary but marked decrease in blood and urine sugars of depancreatized dogs when this solution was given intravenously. They felt that these findings merely supported the theory of a pancreatic internal secretion.[37]

Mackenzie-Wallis, in 1922, prepared an alcoholic extract of pancreas which reduced the glucose level when incubated with blood. The extract had a questionable effect in reducing blood sugar in rabbits and showed little effect when given orally to diabetic patients.[38]

These many prior attempts to extract and isolate the anti-diabetic hormone from the pancreas had been unsuccessful for a variety of reasons. The many attempts to administer the extracts orally were doomed to failure because of destruction of the hormone in the stomach and intestine. Many attempts were made using pancreas which had been allowed to stand so that the naturally occurring trypsinogen had been converted to trypsin which destroyed the internal secretion. Many investigators actually had succeeded in preparing a potent extract but either failed to realize the fact or because of toxic side effects were unable to clinically utilize their potential discovery.

Over the period of years since von Mering and Minkowski published their classic work, many investigations had proven with little doubt the relationship between the islets of Langerhans of the pancreas and diabetes mellitus. It seemed inevitable that someone would succeed in isolating from the pancreas a hormone which would be clinically useful in the treatment of diabetes. Indeed in the early 1920's many able investigators were at work on the problem and several were on the verge of making scientific history when the news from Toronto arrived.

In scientific progress, as in mountain climbing, the surest progress is often made by the new wayfarer who follows the trail blazed by others as far as it goes and then by chance or by surer instinct hits upon the right clue which leads to the summit.

Frederick Grant Banting, a young Canadian surgeon, had in 1920 obtained an appointment as a demonstrator at the University of Western Ontario after an unsuccessful attempt at private practice. In October, while reading an article by Moses Barron in a current *Surgery, Gynecology and Obstetrics*, he conceived the idea of ligating the pancreatic ducts, waiting for degeneration of the acini, and then at-

tempting to isolate the internal secretion. This he believed would eliminate the trypsin which destroyed the internal hormone. This was not a new idea, but luckily Banting was unaware of it.

He was unable to obtain facilities for experimentation at "Western" so he traveled to his alma mater, the University of Toronto, where he persuaded Prof. J. J. R. Macleod of the Department of Physiology to lend him facilities and an assistant for the summer.

Work began in May, 1921, with Charles Herbert Best, who was completing his M.A. in physiology, as assistant. Within two months they had succeeded in preparing a potent aqueous extract of degenerated pancreas. They used extracts prepared at ice cold temperatures from freshly removed degenerated gland. They also obtained potent extracts from fetal pancreas and by macerating whole gland in acidified alcohol.[39, 40]

A sterile extract, prepared from whole gland using acidified alcohol, was used on diabetic patients in December, 1921, with definite decrease in blood sugar. However, sterile abscesses developed at the injection sites.

At this point J. B. Collip of the Department of Pathologic Chemistry at the University entered the project. In a few weeks he found that precipitation by absolute alcohol freed the extract of its contaminating products and resulted in a sufficiently pure and stable form to allow continued use by subcutaneous injection in the human subject.[41]

Banting and his colleagues proposed the name insulin for the active principle of the extract. This term had already been proposed by de Meyer in 1909 and independently by Schafer in 1916 for the internal secretion of the islets of Langerhans.

This epochal discovery by Banting and Best marked the end of the long and difficult search for the elusive internal secretion of the pancreas and the beginning of a new era in the treatment of diabetes mellitus.

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A.M.A. Clinical Meeting

Report of Kansas Delegates

GEORGE F. GSELL, M.D., ***Wichita, and***
LUCIEN R. PYLE, M.D., ***Topeka***

Health care of the aged, the report of the A.M.A. Commission on Medical Care Plans, osteopathy, expansion of medical education facilities, the Association's administrative changes, the report of the Committee to Study A.M.A. Objectives and Basic Programs, and voluntary health organization fund raising were among the wide variety of issues considered by the House of Delegates at the American Medical Association's 12th clinical meeting held December 2-5 in Minneapolis.

Dr. Lonnie A. Coffin of Farmington, Iowa, was named the 1958 General Practitioner of the Year for his outstanding contributions to the health and civic affairs of his home community. Dr. Coffin, who is the first Iowan to receive the annual GP award, accepted his gold medal on behalf of "all the men who have dedicated their lives to the general practice of medicine."

Speaking at the Tuesday opening session of the House, Dr. Gunnar Gundersen of La Crosse, Wisconsin, A.M.A. president, called upon the medical profession to exert leadership and imagination in meeting the problems of these changing times. Urging practical actions to solve medico-economic challenges, Dr. Gundersen declared that "the time has passed for policies based on generalities, platitudes and flag-waving." He also suggested that the association offer support and cooperation to proposals for an International Medical Year.

Governor Orville L. Freeman of Minnesota, who also addressed the opening session, asked for "the help of the leaders of the medical profession in working out a program that will most adequately meet the needs of our older citizens for health care and services of the highest quality."

With half a day still to go, total registration Thursday evening had reached 4,880, including 2,870 physicians.

Health Care of the Aged

Responding to Dr. Gundersen's call for action and Gov. Freeman's plea for help in meeting the health care needs of the aged, the House of Delegates adopted the following proposal submitted by the Council on Medical Service and endorsed by the Board of Trustees:

"For persons over 65 years of age with reduced incomes and modest resources, it is necessary immediately to develop further the voluntary health insurance or prepayment plans in a way that would be acceptable both to the recipients and the medical profession. The medical profession must continue to assert its leadership and responsibility for assuring adequate medical care for this group of our citizens.

"Therefore, the Council on Medical Service recommends to the House of Delegates the adoption of the following proposal: That the American Medical Association, the constituent and component medical societies, as well as physicians everywhere, expedite the development of an effective voluntary health insurance or prepayment program for the group over 65 with modest resources or low family income; that physicians agree to accept a level of compensation for medical services rendered to this group which will permit the development of such insurance and prepayment plans at a reduced premium rate."

In order to effect the immediate implementation of such a program, the House directed that copies of the proposal be distributed to medical society approved plans, including Blue Shield and private insurance programs, requesting their cooperation.

Commission on Medical Care Plans

The long-awaited report of the Commission on Medical Care Plans, appointed at the 1954 Clinical Meeting in Miami, was discussed for two hours at a reference committee hearing, but the House decided to defer action until the June, 1959, meeting. In so doing, the delegates adopted this statement:

"We respectfully suggest to the constituent associations reviewing the report in the interim, that their attitude regarding the report will be clarified if they arrive at some decisions in regard to the following basic points:

"1. *Free Choice of Physician*—Acknowledging the importance of free choice of physician, is this concept to be considered a fundamental principle, incontrovertible, unalterable, and essential to good medical care without qualification?

"2. *Closed Panel Systems*—What is or will be your attitude regarding physician participation in those systems of medical care which restrict free choice of physician?

"These suggestions acknowledge that the policy of

the American Medical Association to encourage and support the highest quality of medical care for all patients remains unchanged. They question, however, whether attitudes toward the free choice of physician and the closed panel system may be undergoing evolutionary change."

The House recommended that the Board of Trustees invite the constituent associations to forward their replies to these questions to the executive vice president 60 days in advance of the June, 1959, meeting.

Osteopathy

Considerable discussion centered on a resolution which would have recognized that constituent medical associations have the right to establish the relationship of the medical profession to the osteopathic profession within their respective states. The House decided, however, that the resolution in question did not offer the appropriate solution to the osteopathic problem. Instead, the delegates requested the Judicial Council to review past pronouncements of the House on osteopathy and the status of the laws of the various states in this regard. The Council was asked to present its report and recommendations at the June, 1959, meeting. The House "noted with favor that the American Osteopathic Association has amended its objectives as stated in its constitution by deleting reference to the cultism of Andrew J. Still."

Medical Education

The House approved a statement by the Council on Medical Education and Hospitals supporting the development of additional facilities for basic medical education, and it urged the entire profession to give that policy strong support in order to correct misinterpretations of the association's viewpoint regarding the supply of physicians.

"American medicine," the statement points out, "fully recognizes the needs being brought about by the increasing population, social and economic trends, and the changing dimensions of medical knowledge and its application." Urging careful analysis of those needs the statement says that existing medical schools should consider the possibility of increasing their enrollments and developing new facilities. It also declares that American medicine has the responsibility to encourage the creation of new four-year medical schools and two-year basic science programs by institutions of higher education which can provide the desirable setting.

A.M.A. Administrative Structure

A Board of Trustees report on the administrative structure of the association was approved by the House, which termed the reorganization of the headquarters staff as a long and important step in the right direction. The report informed the House that the Chicago staff has been divided into the following seven divisions: Business Division, Law Division, Communications Division, Field Division, Division of Scientific Publications, Division of Socio-Economic Activities, and Division of Scientific Activities. The latter two are still in the process of development and are temporarily under the direction of the assistant executive vice president. The Board also reported that the Committee on Legislation has been renamed the Council on Legislative Activities, with the director of the Law Division as council secretary. This new council will undertake an enlarged, strengthened legislative program, closely coordinated with the activities of the new field staff and the Washington Office. The latter also has been reorganized, with overall direction coming from Chicago.

A.M.A. Objectives and Basic Programs

The House received and commended the report of the Committee to Study A.M.A. Objectives and Basic Programs, which it said may be a significant milepost in the association's history. In approving one of the committee's recommendations, the House referred to the Council on Constitution and Bylaws the following suggested amendment of Article II of the constitution: "The objectives of the association are to promote the science and art of medicine and the betterment of public health and an understanding of the socio-economic conditions which will facilitate the attainment of these objectives."

The House also recommended that the Board of Trustees establish a mechanism which will assume responsibility for promoting active liaison with each national medical society. "In the scientific fields," the House declared, "the role of the A.M.A. should be primarily that of leadership, but every endeavor should be made to bring about coordination of the special fields of scientific interest of the other national medical organizations." The delegates also approved a recommendation that the Board of Trustees give serious consideration to opening the publications of the association to a free and open discussion of socio-economic problems applicable to medicine.

Fund Raising

Once again considering fund raising problems which have arisen since development of the concept of united community effort, the House passed a resolution which pointed out that the action taken last June in San Francisco has been interpreted by some as disapproving the inclusion of voluntary health agencies in United Fund drives. It then stated that

"the American Medical Association neither approves nor disapproves of the inclusion of voluntary health agencies in United Fund drives." The resolution also requested the Board of Trustees to arrange a top-level conference with the voluntary health agencies, the United Funds, and other parties interested in the raising of funds for health causes, with a view toward resolving misinterpretations and other difficulties in this area.

Miscellaneous Actions

In dealing with a wide variety of other subjects, the House also:

Took notice of the recent restrictive changes in the Medicare program; expressed regret at the substitution of federal facilities for private care in the areas mentioned, and urged the association to encourage the reestablishment of services under the free choice principle to accomplish the original intent of the act;

Recommended that the Social Security Act be amended by Congress to permit states to combine the present four Public Assistance medical programs into a single medical program, administered by a single agency and making available uniformity of services to all eligible public assistance recipients in the state;

Authorized the Council on Medical Service to sponsor at the earliest practicable date a Congress on Prepaid Health Insurance;

Approved a plan to develop "Buyers' Guides" which will be sent to physicians to help their patients analyze the merits of available health insurance programs;

Approved a Bylaw amendment which will allow dues exemptions for interns and residents serving in training programs approved by the Council on Medical Education and Hospitals;

Called to the attention of all individuals or institutions responsible for intern and resident training that medical services provided to patients in hospitals are the responsibility of duly licensed physicians;

Encouraged the voluntary registration of the paramedical personnel who assist physicians, but opposed the extension of governmental licensure and governmental registration at this time;

Heartily approved and lauded the purpose, content and format of *The A.M.A. News* and recommend continuance of the publication under its present and established policies;

Agreed with the Committee on Medical Practices that relative value studies should be conducted by each constituent medical association but not on a national or regional basis by the A.M.A.;

Urged each constituent society to establish a committee on rehabilitation to carry out activities recommended by the Board of Trustees;

Called for continued activity at all levels to stimulate the development of effective poliomyelitis inoculation programs;

Suggested that the association take immediate steps toward developing a plan whereby reserve medical units and individuals not immediately involved in military operations could be used to supplement civil defense operations, and

Expressed gratitude and appreciation for the long years of devoted service by Dr. Austin Smith, who has resigned as editor of *The Journal of the American Medical Association.*

At the opening session, six state medical societies contributed a total of almost $250,000 to the American Medical Education Foundation. The gifts were: California, $150,305.75; Indiana, $35,110; New Jersey, $25,000; New York, $19,608; Utah, $9,977.50, and Arizona, $8,657.50. In addition, the American Medical Association announced a contribution of $100,000 to the foundation.

It also was announced on the opening day of the meeting that Dr. W. Linwood Ball of Richmond, Virginia, A.M.A. vice president, had been appointed to the Board of Trustees to fill the vacancy caused by the recent death of Dr. Warren Furey of Chicago. Dr. Ball, who will serve on the board until next June, said he will not be a candidate to succeed himself.

Society on Hypnosis Formed

The Kansas Society of Clinical Hypnosis has been organized as a component of the American Society of Clinical Hypnosis, following a year of planning. Regular meetings are scheduled, with the next set for January 21 at 3101 East Ninth Street, Wichita.

Membership is open to any qualified physician, dentist, or psychologist who has recognized training in hypnosis and is using it in his practice.

Officers of the group are: V. G. Henry, Jr., M.D., Newton, president; Donald W. Smitherman, Ph.D., Wichita, vice-president; Earl R. Sheets, D.D.S., Newton, secretary, and Eldon T. Rich, M.D., Newton, treasurer. Information about the organization may be secured from the secretary, Dr. Sheets, Railroad Loan Building, Newton.

The 100th annual meeting of the Kansas Medical Society will be held in Topeka, May 3-7. Hotel reservations for this centennial meeting should be made early.

Kansas will be host to the National Conference on Rural Health, to be held at Wichita, March 5-7.

BLUE SHIELD

The cooperation of medical doctors in Lyon County has made possible an experiment in providing extensive prepaid medical and hospital benefits for Blue Cross-Blue Shield members over age 65 in that county. The new experimental program went into effect on December 1, according to Dr. Edward J. Ryan, president of Kansas Blue Shield.

The project, described as a "one-year experiment to develop a plan for providing sufficient and economical health care and prepaid benefits for all self-supporting people in a community, including the aged" is sponsored by the Lyon County Medical Society, the two hospitals in the county, and Kansas Blue Cross-Blue Shield.

A Unique Undertaking

This is a unique project in that it is the first time such an experiment has been attempted in Kansas, and it is believed it is one of the first experiments of this nature in the country. The program will be limited to Lyon County at least this first year, until results can be determined.

Complete cooperation has been pledged in this project by the Lyon County Medical Society and hospitals in an effort to cut down, if possible, any existing unnecessary hospitalization. The State Commissioner of Insurance, Frank Sullivan, studied the program carefully before approving it early in November.

Dr. K. L. Lohmeyer, Emporia, is chairman of the Lyon County Medical Society's committee that is working closely with Kansas Blue Cross-Blue Shield in planning the program for Lyon County. Other members of the committee are Drs. R. F. Conard, W. E. Luedtke, P. W. Morgan, S. L. VanderVelde, and E. J. Ryan. The latter is an ex-officio member of the committee by virtue of his office as president of Kansas Blue Shield. Ivan Anderson, administrator of Newman Memorial Hospital, is also a member of the planning group.

Benefits Included

Starting December 1, 1958, for a limited period of time, Kansas Blue Cross-Blue Shield, *at no additional cost to members,* will provide its members *over age 65* in Lyon County the following benefits, when prescribed by a physician. These benefits are in *addition to their present hospital-surgical benefits.*

Visiting nurse service in the home, either registered or licensed practical nurse or nurse's aide as requested by the physician. Other types of health care services may also be provided as the physician may request and to the extent that they are available in the community, such as a registered physical therapist. The new visiting nurse service will have headquarters at Newman Memorial Hospital.

Out-patient diagnostic services for other than hospitalized bed-patients.

Home and office calls as based upon the judgment of the physician.

Payment of *50 per cent of the drugs* which require a prescription for non-hospitalized patients.

For Blue Cross-Blue Shield members *under age 65,* limited home care benefits such as visiting nurse service will be made available during the period of the experiment. These benefits will also be made available without any additional cost to members and will be in addition to their present hospital-surgical-medical benefits.

May Decrease Hospital Days

It is anticipated that members will use hospital services less by substituting the out-of-hospital services when medically feasible.

All Blue Cross-Blue Shield members will be notified of the benefits to which they are entitled during the period of this experiment.

Nursing Services Available to the Community

Dr. Lohmeyer stated that the visiting nurse service in the home will be made available to all people in Lyon County for the period of this experimental program. *Any Lyon County resident* may use this service when it is prescribed by a physician. People other than Blue Cross-Blue Shield members will pay for the service directly.

Purpose of Experiment

It is anticipated that the results of the experiment in Lyon County will reveal a combination of medical services and prepaid benefits that provide the optimum efficiency and economy in medical care for the aged. It is hoped that the use of certain home and out-patient benefits will reduce the use of in-hospital benefits particularly for members over age 65 and therefore introduce some economy into the health care and prepaid benefits required by the aged.

It is hoped that these results will stimulate the community of Lyon County to develop and maintain a health prepayment program in which all citizens will participate and which will provide prepaid medical care for all ages at a cost and in a manner all ages in the community will support.

Meets Urgent Need

"During the past decade, use of extensive hospital

benefits has increased at a steady pace. Special patterns of benefits are being offered in this experimental project in Lyon County to meet the urgent need facing the people of Kansas to find a way in which a community, through its own resources, can finance essential care for all members in the community, including the aged," Dr. Ryan stated in his description of the experiment.

Dr. Thomas P. Butcher, president of the Kansas Medical Society, explained, "We have been encouraged by the leadership the Lyon County Medical Society has taken in this project and the cooperation received from the hospitals in Lyon County. It is our hope that this experiment will show the way for the development of community-wide prepayment plans across the state and nation, demonstrating the capacity of communities to finance the needed level of high-quality medical care for aged citizens without further dependence upon the federal government."

ANNOUNCEMENTS

Sectional meeting, American College of Surgeons, St. Louis, March 9-12. Headquarters, Kiel Auditorium; clinics at Barnes Hospital, St. Louis University Hospitals, St. Luke's Hospital, and Veterans Administration Hospital. Write Dr. Michael L. Mason, 40 East Erie Street, Chicago.

Essay contest sponsored by Mississippi Valley Medical Society in 1959. Open to all physicians who are members of A.M.A. Any subject of general medical or surgical interest. Information available from Dr. Harold Swanberg, 209 W.C.U. Building, Quincy, Illinois.

Information on examinations given by American Board of Obstetrics and Gynecology available from Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6, Ohio.

Seventh postgraduate course on diabetes and basic metabolic problems, St. Louis, January 21-24, under sponsorship of American Diabetes Association and St. Louis schools of medicine. Information available from American Diabetes Association, 1 East 45th Street, New York 17, New York.

Postgraduate course on diseases of the chest sponsored by American College of Chest Physicians, Sheraton Hotel, Philadelphia, March 30-April 3. Write the College, 112 East Chestnut Street, Chicago 11, Illinois.

Fellowships in industrial medicine offered in Cincinnati. Write Secretary, Institute of Industrial Health, College of Medicine, Eden and Bethesda Avenues, Cincinnati 19, Ohio.

DEATH NOTICES

Athol Cochran, M.D.

Dr. Athol Cochran, 71, an honorary member of the Pratt County Medical Society, died in Joplin, Missouri, on October 19 of injuries received in an automobile accident. A graduate of Memphis Hospital Medical College, Memphis, Tennessee, in 1902, he began practice in Pratt and continued there until his retirement in 1950.

Avery Mortomer Garton, M.D.

A 75-year-old physician in Chanute, Dr. A. M. Garton, died at his home on November 27 after suffering a heart attack. He had practiced in Chanute since 1909, a year after his graduation from the University of Kansas School of Medicine. He was a member of the Neosho County Medical Society.

Harold Thoes Morris, M.D.

Dr. H. T. Morris, 63, a cardiologist in Topeka, died at his home on December 3. A graduate of Northwestern University Medical School in 1919, he came to Kansas in 1920 and began practice in Topeka. He was a member of the Shawnee County Medical Society. Among the survivors is a son, Dr. M. D. Morris, who practices in Topeka.

John Fredrick Northrup, M.D.

An honorary member of the Shawnee County Medical Society, Dr. J. F. Northrup, 83, died on December 7. After graduation from Hahnemann Medical College of the Kansas City University in 1899, he practiced in Soldier for eight years, then went to Junction City, and opened an office in Topeka in 1923.

Economics in Medicine

Business Expenses Must Be Controlled

FLOYD F. WEHRENBERG, ***Kansas City, Missouri***

While the income you earn is certainly of primary importance to your financial program, it is not the only factor to be studied carefully. Having established the most effective procedures for collecting the money due you, your next step is to be prudent in spending that money.

A portion of your income automatically is paid out for business expenses. While many of these expenses are fixed, they cannot be ignored. It is important for you to know what portion of your monthly income is spent to produce that income.

Divide your total cash receipts into your total business expenses. That figure is commonly referred to as your "overhead percentage." The relationship of your overhead to your financial program can readily be seen in this illustration. A hard-working doctor earned $60,000 gross income in one year, but his overhead ran between 50 and 60 per cent. This meant a net profit to him of approximately $27,000.

Compare those results with the net profit of the doctor who earned $45,000 but kept his overhead down to 35 per cent. His net was $29,250 for the same period. This doctor was probably not working as hard, but he realized a greater return for his efforts by controlling his expenses.

The average physician's overhead should run between 35 and 40 per cent. This, of course, varies with certain conditions, but it should never be appreciably higher in any practice.

If your overhead percentage is too high, it may be that your expenses are out of line. However, it is also possible that your volume is too low, your fees are inadequate, or your collections are poor. It is essential that you find out *why* if your overhead is above average!

Drugs

One item to watch carefully is your drug expense. Many doctors are losing money by dispensing. Some do not like to charge the full office call fee if medication is given to the patient at that visit, so they reduce their fee. There have been many cases where a doctor has increased his income from services several hundred dollars a month just by prescribing instead of dispensing. The reason was not that he saw more patients or that he raised his fees, but rather that he began charging his regular fee for office calls in all cases. Others do not have an adequate mark-up on their drugs. A recent survey showed a 300 per cent variance on the price of the same drugs dispensed by different doctors!

Still other physicians who have collection problems find they are not only losing their fees for services but for drugs as well. The average patient knows he will be expected to pay for medication he purchases at the pharmacy, but many patients routinely "charge" them in the doctor's office. If you dispense, it is not unreasonable to require that the patient pay cash for drugs given to him. However, we are strongly opposed to signs stating that "All Drugs Are Cash." This is too cold and impersonal an approach. It is far better for your assistant to inform the patient. "It is our policy to require payment for all drugs dispensed." If the patient objects, it is easy for her to explain, "We keep medications here in the office for the convenience of our patients, Mrs. Brown, but I'm sure that you can see we must ask patients to pay as they obtain the drugs so we can keep our supply current. This is no more than would be required of you at the drugstore."

Salaries

The second variable expense to be observed is your salary expense. Remember, you can't pay too much for a good girl, but whatever you pay for a poor assistant is too much.

Your salary expense is a guide to the efficiency of your office. If it is out of line, it may warn you that your assistants are not producing as they should. If it is too low, perhaps you should consider giving your assistant a raise to be sure she is adequately paid for her services. Generally, salary expense runs between 10 per cent and 12 per cent of cash receipts.

Give careful study to your expenses. They will help you control your practice by informing you of the efficiency of your operation. They are also a vital factor in your financial program and in your ability to fulfill the plans you have made for yourself and your family.

Mr. Wehrenberg is Missouri-Kansas manager, Professional Management Mid-West, 4010 Washington Street, Kansas City, Missouri.

PHYSICIANS' ACTIVITIES

Dr. Paul J. O'Connell, Kansas City, who has practiced for 48 years, was honored by the Greater Kansas City chapter of the American Academy of General Practice at a party on November 27. He was presented a "Book of Life" depicting his activities.

Dr. and Mrs. Ira R. Morrison, Atchison, returned recently from a trip to Europe. Dr. Morrison spoke at a meeting of the International Congress of Allergy in Paris.

A feature story about **Dr. LaVerne B. Spake,** Kansas City, was published in the *Kansas City Kansan* for November 23.

Dr. Charles J. Bliss, Perry, was guest of honor at an "appreciation" party sponsored by his community last month. He has practiced in Perry for 39 years. Three hundred persons were present.

"Footprints" was the subject chosen by **Dr. Karl A. Menninger,** Topeka, for an address before the Boston Psychoanalytic Institute last month.

Dr. Benjamin E. White, El Dorado, has been reelected to a second term as coroner of Butler County.

Dr. Maurice J. Ryan, Kansas City, has been named president of the Kansas City Southwest Clinical Society for 1959. Another Kansan, **Dr. William T. Sirridge,** is associate director of clinics for the year.

A feature story about **Dr. Charles Pokorny,** Halstead, and his hobby of growing orchids, was published in a recent issue of the *Hutchinson News*.

Dr. John D. Smith, Sublette, announces that **Dr. Walter E. Blevins** is now associated with him in practice. Dr. Blevins, a graduate of the University of Oklahoma School of Medicine, formerly practiced in Liberal.

A feature story about **Dr. Richard A. Stewart,** 90-year-old co-founder of the first hospital in Hutchinson, was published in the *Hutchinson News* recently. Dr. Stewart retired from practice in 1949.

"Growth of the University Medical School in the Past Ten Years" was the subject chosen by **Dr. W. Clarke Wescoe,** dean of the school, for an address before a recent meeting of the Sedgwick County KU Alumni Association in Wichita.

Dr. William R. Miller, Wichita, discussed "Athletic Injuries" at a teachers' convention held in Hutchinson in November.

Dr. Lucien R. McGill, who had not filed as a candidate for the office of coroner of Barton County, was reelected in November on the basis of 62 write-in votes.

Dr. Robert C. Fairchild, Mission, has been appointed to the board of directors of the Kaw Valley Heart Association.

Dr. William L. Valk, of the University of Kansas School of Medicine, has been named a member of the editorial board of the *Journal of Urology*.

A Salina radiologist, **Dr. Donald M. Wald,** has announced plans to spend one day a week at the hospital in Clay Center.

Dr. Harry M. Ricketts, Ottawa, was recently appointed health officer for Franklin County.

The American College of Physicians announces the awarding of a fellowship to **Dr. Charles Kendall,** Concordia. A grant of $3,900 was awarded for research on refractory heart failures, the study to be pursued at the University of Kansas Medical Center, Kansas City.

Dr. Floyd L. Smith, Colby, addressed the Chamber of Commerce there recently on the past, present, and future of the local hospital.

Dr. Russell J. Eilers, assistant professor of pathology at the University of Kansas Medical Center, has

been appointed to the board of directors of the North Central District Blood Bank Clearing House.

Plans to discontinue practice in Baldwin have been announced by **Dr. James S. Reed,** who has been there since 1955. He will move to Lawrence to practice in association with **Dr. Byron W. Walters.**

Dr. Ralph J. Rettenmaier was recently appointed instructor in pathology at the University of Kansas School of Medicine, Kansas City.

The American Medical Writers' Association announces the election of **Dr. Karl A. Menninger,** Topeka, as first vice-president.

Dr. Thomas P. Butcher, Emporia, is serving a two-year term as a director of the Mississippi Valley Medical Society.

Test to Kill Free Cancer Cells

A preliminary report on the use of a chlorine derivative to kill free cancer cells in an effort to reduce the incidence of cancer recurrence after colon surgery was made recently by a Philadelphia surgeon.

Speaking before the western regional meeting of the United States Section, International College of Surgeons, Dr. Harry E. Bacon said tests on the use of a new chemical known as Clorpactin XCB have been under way since last March.

Dr. Bacon, who is professor and head of the department of proctology, Temple University Medical Department, Philadelphia, said that while he was impressed with the potentialities of Clorpactin XCB he emphasized that "an additional period of time with a larger number of patients and similar studies by interested groups of workers will be required before basic conclusions can be reached."

He pointed out that various reports show a local cancer recurrence of from 14 to 26 per cent and a resulting mortality of 15 per cent after an operation for cancer of the colon and rectum. Available reports also indicate the presence of free cancer cells in the bowel in about 32 per cent of the cases studied, he said. There also is danger of seepage into the abdominal cavity.

"All these factors tend to negate our 'procedure for cure' that we so meticulously and conscientiously strive for constantly," Dr. Bacon said.

In an effort to overcome this problem, he said Clorpactin XCB is being used as a lavage.

"XCB has been shown to possess a definite cancericidal action against free viable cells, singly or in clusters," he reported. "This action occurs within three minutes after contact of the solution and cells.

"The mode of action is by the liberation of hypochlorous acid in both liquid and gaseous forms, the end result being oxychlorination of the individual cells. Tumor fragments, however, are not considered as prime targets.

"Fecal matter in the lumen tends to offset this specific action to a degree that the bowel must be quite empty to obtain maximal action. Repeatedly, we have employed as much as 1,000 cc. in the peritoneal cavity and at no time have harmful effects on normal tissue been observed.

"While the exposed tissue may turn a dark brown color it does not appear to interfere with normal tissue growth or satisfactory wound healing.

"A sufficient period has not elapsed wherein a statistical report can be made," Dr. Bacon reported. "Smears taken for viable cells and chemical tissue reaction will be evaluated by joint cooperation with the department of pathology.

"It may be mentioned that we have encountered no untoward effects. We have been impressed with the investigations recognizing the potential of XCB. If we accept this premise, we may anticipate a lowered rate of recurrence."

Dr. Bacon said other scientific workers are making studies along similar lines.

The Outlook in Hypertension

Some 60 authorities on the subject of high blood pressure, meeting in Philadelphia recently for a week-long discussion of where hypertension researchers stand and where they are going, agreed generally on two points:

1. In the past eight years, since the last full-dress conference on high blood pressure was held in Minneapolis, the outlook for hypertensive patients has improved by leaps and bounds.

2. The next few years promise even greater discoveries, perhaps even an understanding of the basic cause of blood pressure—the key to control, prevention, or even reversal of the process.

On past progress, a statement by Dr. John H. Moyer, professor of medicine at Hahnemann Medical College and organizer of the symposium, sums up the situation:

"Eight years ago malignant hypertension was fatal in 90 per cent of cases within two years. Under current treatments, one series of patients demonstrates a reduction of mortality to about 15 per cent."

This mortality rate of 90 per cent within two years —some authorities say almost 100 per cent—is even higher than the mortality rate of cancer or coronary occlusion.

COUNTY SOCIETIES

A meeting of the Tri-County Medical Society was held at Harper in November. Dr. Richard L. Sifford, Wichita, discussed "Modern Concepts of Cardiovascular Disease, Diagnosis, and Treatment."

Members of the Nemaha County Society met in Seneca last month and discussed plans for the National Conference on Rural Health to be held in Wichita in March.

J. F. Crow, Ph. D., professor of genetics at Wisconsin University and a brother of Dr. E. W. Crow of Wichita, was guest speaker at the December 2 meeting of the Sedgwick County Medical Society. He spoke on "Genetics in Medicine and the Biologic Effects of Radiation."

Vacancies on various boards of the society were filled by the following appointments made by the Board of Directors: Dr. Harry T. Hidaka to a two-year term on the Board of Directors; Dr. Benjamin W. Barker to a three-year term on the Medical Service Bureau; Dr. Charles L. Williams and Dr. William J. Reals to three-year terms on the Library Board; Dr. Harold L. Low and Dr. James H. Holt to three-year terms on the Executive Council.

In an effort to find unknown diabetic patients, the Douglas County Medical Society gave tests without charge during National Diabetes Detection Week and received good newspaper publicity during the event.

Dr. G. Sherman Ripley, Jr., was elected president of the Saline County Medical Society at the December meeting of the group in Salina. Other officers are: Dr. Henry S. Dreher, Jr., vice-president; Dr. Clarence J. Weber, secretary, and Dr. Frederick A. Gans, treasurer. Physicians from Schilling Air Force Base were guests at the meeting.

Members of the Montgomery County Medical Society were guests of the Montgomery County Bar Association at a dinner meeting at the Coffeyville Country Club last month. Mr. Al Grauerholz spoke on "Legal Aspects of Medicine," and a film on cardiac surgery was shown.

New officers of the Dickinson County Medical Society were elected at a meeting held in Hope last month. Dr. Archie W. Butcher, president, will be assisted during 1959 by Dr. Dean C. Chaffee, vice-president, and Dr. George C. Steinberger, secretary-treasurer. Dr. Butcher will also represent the group as delegate to meetings of the Kansas Medical Society.

Publicity in the *Manhattan Mercury* last month attested to the effectiveness of the Riley County Medical Society in staging a disaster rehearsal. Twenty-five Boy Scouts played roles of injured persons and were transported to hospitals.

Dr. Bruce G. Smith, Arkansas City, was elected 1959 president of the Cowley County Medical Society at a meeting held last month at the Winfield Country Club. Other officers are: Dr. Laslo K. Chont, Winfield, vice-president; Dr. Calvin J. Zerwick, Arkansas City, secretary; Dr. Charles C. Hawke, Winfield, member of the board of censors, and Dr. James E. Hill, Arkansas City, delegate.

Dr. Arthur P. Klotz, chief of the section of gastroenterology at the University of Kansas School of Medicine, spoke on "Functional Disorders of the Gastrointestinal System."

Members of the Iroquois Medical Society entertained their wives and the administrators of the hospitals in the area at a dinner meeting in Meade last month. Dr. R. H. Hill, Meade, a member of the Kansas Medical Society Committee on Hospitals, outlined the committee's work in writing an accreditation code for small hospitals.

"The Relationship of Christian Faith to Health" was the subject discussed by Dr. William Williamson, professor of neurosurgery at the University of Kansas Medical Center, at a recent meeting of the Tri-County Medical Society in Marion.

At a meeting of the Leavenworth County Medical Society, held at Leavenworth last month, Dr. Frank W. Masters, assistant professor of surgery at the University of Kansas School of Medicine, spoke on "Facial Trauma."

Physicians of the Society's first district entertained their wives at a dinner meeting at the Redmon Hotel, Hiawatha, on December 15. Dr. Emerson Yoder, councilor, presided. Dr. Virgil E. Brown, Sabetha, told of plans for the National Conference on Rural Health, to be held in Wichita, March 5-7,

and Dr. Thomas M. Butcher, Emporia, president of the Society, described a plan for prepaid medical care for the aged.

Dr. Wayne L. Fowler was named president of the Cloud County Medical Society for 1959 at a meeting held at Concordia, December 9. Other officers are: Dr. Marion C. Pearson, vice-president, and Dr. Arthur L. Duell, secretary-treasurer. The physicians will hold the same offices on the staff of St. Joseph's Hospital, Concordia.

Officers of the Leavenworth County Medical Society, elected at a meeting held at Leavenworth on December 8, are: president, Dr. Thomas W. Graham; vice-president, Dr. Kenneth A. Powell, and secretary, Dr. J. Malcolm Graham. Dr. Thomas P. Butcher, Emporia, outlined a plan for providing medical care for the aged.

Members of the Shawnee County Medical Socitey entertained their wives at a dinner dance at the Topeka Country Club on December 17. Mr. John Ripley showed slides of early-day Topeka. Music for dancing was furnished by Les Harding's orchestra.

Giant TV Set for Medical Use

The largest and most advanced compatible color TV "set" in the world—a 1500-pound electronic projector capable of presenting pictures 9 by 12 feet—has been built in the Netherlands for use at U. S. medical meetings, Smith Kline & French Laboratories announced recently.

Built by the famed Holland electronics firm of Philips, the device is actually three projectors in one. Each projector sends a different color onto the screen. Overlapping of graded images in the primary colors provides the shadings and variations seen on the screen.

When Smith Kline & French Laboratories, Philadelphia pharmaceutical firm, pioneered medical color television more than nine years ago, the only viewing equipment consisted of 10-inch home-style screens. Later, Smith Kline & French utilized U. S.-built projectors capable of pictures 4 by 6 feet. The larger the picture, however, the less brilliant the projected image—hence the search for an improved projector that would provide both brilliance and large screen-size.

The Philips unit can project pictures four times larger or three times brighter than the most advanced compatible color TV equipment manufactured here. The improvement in brightness and size may make it possible to view medical color television in normally-lit convention auditoriums.

The first Philips large-screen color TV projector was installed permanently in France recently at the Faculté de Médecine et de Pharmacie de Marseilles. The Smith Kline & French projector, not a stationary installation, will be part of SKF's mobile medical color television unit, which travels 25,000 miles annually. Modifications for the projector's U. S. use were designed by North American Philips Co., Inc., and the SKF crew.

Bulletin on Trichomonas Vaginalis

A new monthly publication, *The Trichomonas Vaginalis Bulletin,* is being published by Eaton Laboratories, Norwich, New York, as part of its program of informational services to physicians, L. Eugene Daily, M.D., vice-president, has announced.

The bulletin, which is mailed to urologists, obstetricians, gynecologists, industrial and other physicians provides a review of the literature on Trichomonas vaginalis from non-English speaking countries. It is edited by Rolland J. Main, Ph.D., director of Eaton's division of scientific information.

"Because of the growing interest in Trichomonas vaginalis, the bulletin was added to the roster of publications provided by Eaton to review new medical developments—particularly those reported in the foreign literature," Dr. Daily said. Other Eaton publications include the *International Urologic News Bulletin* and the *Medical Director's Notebook.*

In addition to covering the literature on Trichomonas vaginalis, the bulletin will also cover reports of interest on vaginal moniliasis and bacterial vaginitis. The first issue appeared in September.

Film to Aid Pediatric Surgery

A color film depicting various pediatric premedication procedures and techniques to allay children's fear of surgery has been prepared by Dr. Max S. Sadove, anesthesiologist, in cooperation with Wyeth Laboratories It presents several typical pediatric cases from admission to discharge, with emphasis on pre- and postoperative care.

Requests for showing should be addressed to Film Library, Wyeth Laboratories, Box 8299, Philadelphia 1, Pennsylvania.

More than 26 per cent of the drivers in fatal crashes last year were under 25 years of age. On the other hand, 96.6 per cent of the fatal accident drivers had over one year's driving experience.

BOOK REVIEWS

Poisoning: A Guide to Clinical Diagnosis and Treatment: Second Edition. By W. F. von Oettingen, National Institute of Health. Published by W. B. Saunders, Philadelphia, 1958. 627 pages. Price $12.50.

Dr. Von Oettingen has presented the medical fraternity with a useful text. His stated intention has been to provide in a single source the information needed for medically solving the problem of detection of a poisoning, and then successfully treating the poisoned patient. This aim has been fully attained in this writing.

The fourth and largest section of this book, 396 pages, is composed of an alphabetically arranged listing of poisons and drugs capable of producing toxic reactions. An adequate description of the clinical signs and symptoms produced by the listed toxicant and the main therapeutic measures to be employed in such a situation appear under each name. Most of the descriptions contain as well a bibliographical reference list for more detailed information and study. This section is in itself an index of sorts, but the general index of 28 pages is indeed more useful.

For instance, in part IV, Jimson-weed is not listed in the alphabetical sequence as such, but is listed under the constituent toxicant name of Datura Stramonium. Inasmuch as the lay person as well as most physicians probably would not recognize this term, Jimson-weed appears in the general index under the more commonly used names of Jimson-weed, Jamestown-weed, Devil's apple, Thorn apple, and Stinkweed. Thus a description of its toxic pharmacologic properties, and the measure of combating same, may be more easily found. Quite obviously, such cross listing materially enhances the usefulness of the text when the name of the poison is known. Proportionately more space is devoted to the more common toxic agents, their signs and symptoms, and treatment. Aspirin, and the barbiturates, are examples.

In an effort to provide a systematic program for rapid identification of the unknown poison, Dr. Von Oettingen has prepared a section of over 100 pages in which individual signs and symptoms as clinically experienced are discussed. This is Part II. The appreciable changes in structure and altered physiological effects are grouped into the body systems involved, such as the skin, circulatory system, digestive system, etc., for easy regional reference. Under the discussion of each such sign or symptom is a listing of those substances commonly involved in their production, with an indication of the relative frequency of experienced incrimination. Thus with a given set of signs and symptoms, the investigator may begin by elimination to appreciate the nature of the toxic agent involved in the problem and ultimately to focus attention on a few prime suspect substances.

Included in the section also are methods of testing blood and urine specimens for chemical identification of the toxin. Only those procedures that can be accomplished in the office or hospital laboratory in a practical fashion are mentioned.

Unfortunately, while speculation about, and identification of, the specific toxicant is going on, treatment must normally be undertaken too. In Part III of this volume, technics for the management of symptom control, methods of removal of the toxicant, and the possible means of detoxifying the poison are concisely but thoroughly outlined.

In Part I of this volume are discussed the topics of the classification and diagnosis of poisonings in general terms, medico-legal responsibilities, and emergency measures to be employed in these problems. Included in the latter is a list of equipment for emergency use as well as a list of drugs and chemicals of value.

In style, format, and information this text is excellent and should occupy a niche in every Poison Control Center library, and perhaps one as well on any practitioner's shelf.—*T.C.H.*

What Do We Know about Heart Attacks? By John W. Gofman, M.D. Published by G. P. Putnam's Sons, New York City. 180 pages. Price $3.50.

This book is intended for reading by the general public. It amounts to 180 pages which should be entitled: "How the Serum Lipoprotein Measurement Can Solve the Heart Attack Problem." There is general consideration of the fatty substances in the blood and their relation to cardiovascular disease. In addition there is discussion of additional factors such as age, sex, body weight, high blood pressure, familial factors, cigarette smoking, emotional stress, physical activity, and a single chapter delegated to diabetes and heart attacks.

The book is repetitious in many respects. Each of the above is analyzed rather carefully in regard to the known aspects of physical and laboratory factors with special emphasis on the serum lipoproteins. A great number of charts are given with specific lipoprotein levels for the various influences involved. Considerable discussion is also given to research methods which have substantiated the value of lipoprotein and Atherogenic Index levels in prognostication of heart attacks and prognosis after a heart attack.

There is no argument that this laboratory measure-

ment is a great step in the understanding of atherosclerosis and its effect upon circulatory diseases. The reviewer feels that the detailed information in this book should be understood by medical practitioners. However, it is not the type of information which the general public should know. We find so many instances of iatrogenic heart disease produced by the physician reporting a slightly elevated blood pressure, or slightly elevated serum cholesterol, or if specifically checked, a slightly elevated Atherogenic Index. It still must be admitted that there is a great deal more to the problem than this single laboratory examination. The book cannot be recommended for reading by the general public.—*G.B.W.*

Ciba Foundation Colloquy on Aging. Water and Electrolyte Metabolism in Relation to Age and Sex. Volume 4. Edited for the Ciba Foundation by G. E. W. Wolstenholme and Cecilia M. O'Connor. Published by Little, Brown and Company, Boston. 327 pages. Price $8.50.

This is the fourth colloquy on aging presented by the Ciba Foundation. The other three were:

I. General Aspects

II. Aging in Transient Tissues

III. Methodology of the Study of Aging

This volume presents 27 authorities discussing such problems as the development of physiological regulation of water content, glandular secretion of electrolytes, hormonal aspects of water and electrolyte metabolism, the development of acid base control, effect of age on electrolytes in the red blood cells, effect of age on the body's tolerance for fasting, thirsting, and for overloading with water and certain electrolytes.

Each presentation is followed by a discussion of the most interesting points by others at the colloquy.

One of the most interesting papers reported a case of magnesium deficiency presented by Card and Marks of Western General Hospital, Edinburgh.

This volume is certainly worth reading, especially to those interested in the physiology and recent experimental work in water and electrolyte metabolism. —*G.W.N.*

Nutritional Problems

"The most common nutritional problem among adults in a prosperous country such as the United States is obesity, yet the true incidence of this condition is unknown." That is the opinion of Dr. Grace Goldsmith, professor of medicine at Tulane University School of Medicine, expressed at a symposium on nutrition held in New York City recently.

"The term obesity is not synonymous with overweight," she continued. "Rather, it means that the fat content of the body is excessive. Methods of estimation of total body fat are available but have had limited application. There seems little doubt that obesity is a hazard to health but the specific role of excessive fatness in disease has not been delineated. Even the hazards of overweight are the subject of controversy.

"Obesity results from a positive energy balance, i.e., the energy supplied by the food consumed is greater than the energy expended for basal metabolic needs and physical activity. In experimental animals, obesity may be due to hereditary metabolic abnormality, to dysfunction of centers in the nervous system which regulate food intake, and to inactivity. Few studies of the regulation of food intake or of intermediate metabolism have been conducted in obese human subjects. Investigation in this area is urgently needed. Studies of energy expenditure in man indicate wide variations for a given physical activity among individuals of comparable age, sex, and body size.

"Other common nutritional problems encountered frequently in times of prosperity are those that result from disease; any and all nutrient factors may be involved, i.e., protein, carbohydrate, fat, vitamins, and minerals. Of increasing interest is the possible role of nutrition in the so-called degenerative diseases, those conditions commonly associated with the aging process. The prevalence of atherosclerosis and its complications in prosperous countries is noteworthy. The possible relationship of dietary fat to atherosclerosis and coronary artery disease is being extensively investigated at the present time."

BCG Vaccination for Specific Groups

Five special groups of persons, according to a recent release from the American Trudeau Society, are recommended for BCG vaccination. Any physician may obtain the vaccine from Laboratory of Research Foundation, 70 West Hubbard Street, Chicago 10, Illinois.

The five groups are as follows:

1. Doctors, medical students, and nurses who are exposed to tuberculosis;

2. All hospital and laboratory personnel whose work exposes them to contact with the bacillus of tuberculosis;

3. Individuals who are unavoidably exposed to infectious tuberculosis in the home;

4. Patients and employees in mental hospitals, prisons, and other custodial institutions in which the incidence of tuberculosis is known to be high;

5. Children and certain adults considered to have inferior resistance and living in communities in which the tuberculosis mortality rate is unusually high.

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Symposium on Rural Health

A symposium on subjects pertaining to rural health is presented in this issue of the JOURNAL as the Editorial Board's contribution to the success of the National Conference on Rural Health. Reprints of the articles published here will be distributed to those attending the conference.

BOSTON MEDICAL LIBRARY FEB 19 1962

An Invitation to the Conference On Rural Health

The Kansas Medical Society has the privilege, this year, to be host to the National Rural Health Conference which is to be held in Wichita, at the Broadview Hotel, March 5, 6, 7.

The theme of this conference is "Horizons in Health." This conference is a part of our centennial program. Each doctor is urged to attend and to encourage other community leaders to take advantage of this unusual opportunity to discuss new methods to help solve community problems.

The program for this conference has been prepared by the Rural Health Council of the American Medical Association and the Committee on Rural Health of the Kansas Medical Society. Representatives from several groups interested in health problems of the Kansas people also served on the program committee and have spent long hours preparing for this meeting.

Kansas was chosen as the site of the conference through the efforts of the state society and through the influence of the Farm Bureau and several other farm organizations of Kansas. We are getting strong support from our state farm organizations.

Kansas is well known for several reasons: the Murphy Kansas plan; the successful Kansas University preceptor program; the Kansas University postgraduate courses for general practitioners; the work of the Menninger Foundation, and many other outstanding projects. So we can expect a great national interest in this meeting.

The conference is an opportunity for each physician to show his willingness to cooperate to help solve community problems. Much of the program will be an open panel type of discussion with opportunities for questions and answers. We believe many misunderstandings can be removed by discussion. Also, that many health problems can be solved by the individual and by the local community if they have proper information and intelligent leadership. The committee believes such a conference will do much to help the doctor understand the farmers' problem and vice versa.

Will you help make the conference a success by attending and by urging responsible leaders in your community to attend?

VIRGIL E. BROWN, M.D., *Chairman*
Committee on Rural Health

The Rural Water Supply

Outline of Program in Kansas for Providing Safe and Palatable Water

DWIGHT F. METZLER, *Topeka*

Thirty-eight per cent of the population in Kansas, 781,650 persons, depends upon private sources for drinking water. Most of these persons live on farms and in small communities which do not have a public water supply, and their water comes from about 25,000 different wells, cisterns, and springs. While much attention has been given to the safety of public water supplies in Kansas, particularly since the Newton epidemic of 1942 when some 3,000 persons suffered from bacillary dysentery from an accidentally contaminated water main, considerably less effort has been directed toward improving the quality of water for farms and other private sources.

The distribution of water on farms and at Kansas rural schools has improved with the great growth of electric transmission lines in rural areas. New wells and the building of water pressure systems have caused some improvement in the protection of small water supplies for farm homes, but not enough. Depending upon the season of the year, up to 50 per cent of all rural water samples tested at the Water and Sewage Laboratory of the Kansas State Board of Health are unsafe, and information submitted with the samples indicates that many more are inadequately protected from surface washing, seepage, and bacterial pollution.

Pure water does not exist in nature; practically all of it has been subjected to pollution, either while it was falling as rain, while it was flowing over the ground, or while it was percolating into the earth. Fortunately, percolation through the soil works to remove bacterial contaminants, although it permits the dissolution of soluble minerals such as chlorides, nitrates, and sulfates.

Most of the ground water which occurs in Kansas comes from rain which falls in the state. Contrary to the often expressed theory that great underground rivers flow from the Rocky Mountains into Kansas, very little ground water comes from outside the state; yet large amounts of ground water occur in Kansas, as shown by Figure 1. In the Equus beds of western Harvey and eastern Reno counties, five times as much water is stored as occurs in all of the surface streams of the state. The ground water in more than half of Kansas has been mapped under a cooperative program of the Kansas Geological Survey, the U. S. Geological Survey, the State Board of Agriculture, and the State Board of Health; bulletins are available from the Kansas Geological Survey at Lawrence for many of these counties.

Although wells supply water to most rural Kansas families, some areas of the state have such small amounts of ground water that farmers frequently depend upon cisterns. This is particularly true in the two eastern tiers of counties and the two northern tiers of counties east of Smith Center. Cisterns pose some special problems, as will be noted later, but with reasonable care they are satisfactory sources of supply. This area of ground water deficiency is one in which dug wells predominate and poor bacterial quality is common. During the summer as many as 90 per cent of samples from here may show bacteriological contamination. Toward the central and western parts of the state where wells are drilled and driven, the percentage of contaminated wells may be as low as 10.

With 38 per cent of Kansans dependent upon rural water supplies, it is important that contamination of wells and cisterns be eliminated or controlled. The program to provide safe water for rural residents of the state is outlined.

Bacterial Contamination

While typhoid is the best-publicized of waterborne diseases, paratyphoid, dysentery, infectious hepatitis, amebiasis, and possibly poliomyelitis are also transmitted by water. In judging the safety of water, authorities consider unsafe any supply which appears to have been contaminated by fecal organisms or which is open to pollution.

The State Water Laboratory makes bacteriological analyses upon the request of a local health officer, a practicing physician, or any citizen. If the sample is

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collected by the local health officer, he makes a sanitary survey of the well at the time of collection and interprets the analyses. Local health officers are required by statute to make a sanitary inspection of each school before it opens in the fall, and collection of water samples is part of this inspection. If the sample is collected by the family, a charge of $2.00 is made for interpretation of the analysis. Special groups such as rural schools and Grade A dairies submit samples for analysis at regular intervals, usually annually. Rural groups, particularly 4-H clubs, carry out sampling programs in connection with well improvement programs.

Samples should be collected indoors if possible. If a hand pump and yard hydrant are the only available sources, the lip of the pump or hydrant should be flamed and water pumped from it for one to two minutes. Only sterile bottles obtained from the Water and Sewage Laboratory should be used. The stopper or lip of the bottle should not be touched. The bottle should be filled to within one inch of the top and the stopper should be replaced. It is particularly important that the sample be collected and mailed as soon as the bottle is received, and that it be identified on the sheet which accompanies the bottle. After the sample reaches the laboratory, three days are required for the bacteria to grow. The report is usually mailed out on the fourth day.

In public water supplies where chlorination is an accepted practice, the consistent attainment of zero coliforms is practical and desirable. Where the farm supply is a well or cistern, however, such a rigid standard is not necessary if the well is adequately constructed at least 100 feet away from possible sources of pollution such as septic tanks, privies, and feed lots. Well water having a low most probable number in the range of 2.1 to 4.7 per 100 ml. is satisfactory if the above conditions are met. The presence of coliform organisms appears to be seasonal, with the worst conditions occurring after spring and early summer rains. To maintain careful surveillance over the bacterial quality of a well, one sample should be collected in the summer and one in mid-winter.

When the laboratory reports a sample as contaminated, defects should be corrected through a careful study of the well and its surroundings, chlorinating the well, and taking a second sample after the chlorine is gone. Seldom is the water-bearing formation contaminated; instead the well is of faulty construction.

Well Location and Construction

Experience has shown that dug wells have the poorest bacteriological record, but in some areas they provide the only means for collecting sufficient

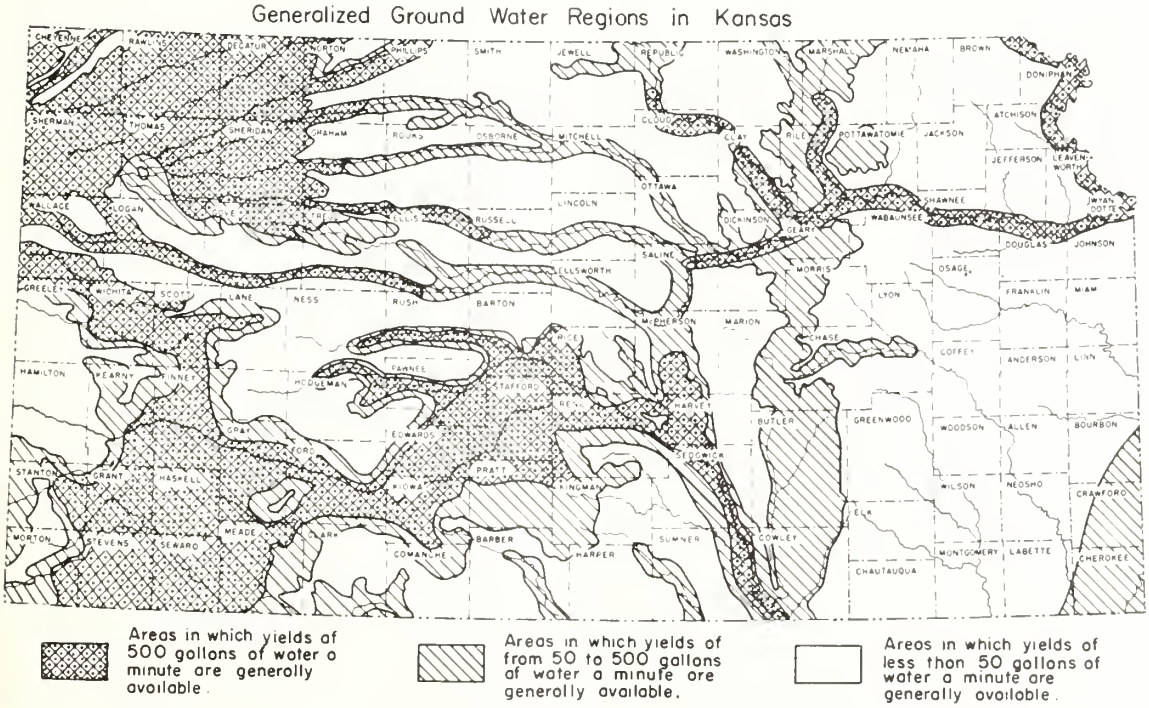

Figure 1

water for a family. Drilled wells as a group have a superior record for producing safe water; and with a few construction precautions, they are adequate. The safest wells, however, are those where a well point is attached to pipe and the pipe driven into the water-bearing formation.

All wells should be at a site having good surface drainage toward possible sources of pollution such as drains and barnyards. In addition they should be a minimum of 100 feet away from these and other possible sources of contamination. In creviced limestone and gravel formations, greater distances are necessary because of the ease with which pollution can travel. Shallow wells which do not extend below an impervious clay or rock formation may be unsafe because tree roots and rodent burrows allow polluted surface washings to enter the water-bearing aquifer. Abandoned wells and wells converted to cesspools should be located and filled with clay if they are in the vicinity of a proposed well.

Tight slabs with impervious walls to a depth of 20 feet are needed to protect against contamination. The slab should be set at a height which permits drainage away from it. Practically all ground water in Kansas is of good bacteriological quality at depths exceeding 15 feet. It becomes contaminated when wells are not sealed so that surface water flows into them or when nearby sinkholes or abandoned wells channel polluted water underground. Figures 2 and 3 show methods for protecting drilled and dug wells.*

Cisterns

Cisterns store rain water for uses requiring soft water, and they are also used where the supply of ground water is inadequate. Charcoal and sand filters are often used, but they are not recommended because they are not kept clean. Roof washings and bacteria which are trapped in the filter degrade the water rather than improve it. Good quality water can be assured by wasting the first water from a rain and storing the rest in a tight cistern. When this is not practical, the cistern can be treated with chlorine bleach at the rate of one cup of bleach per 1,000 gallons of water each time the cistern is filled. No chlorination is needed when a cistern is filled with water from a municipal supply.

Chemical Impurities in Water and Their Significance

Some of the common impurities and their effects are given in the table shown below, adapted from material in the *Texas Manual for Water Works Operators*.

Some of the most dramatic stories in the author's experience deal with Kansas infants stricken with methemoglobinemia, sometimes called "blue-baby" disease or nitrate cyanosis. I recall twins from Garnett who were being rushed to a Kansas City hospital only to have the ambulance delayed by a switch engine; one of them died during the 20-minute wait. The other responded promptly to therapy upon reaching the hospital. Usually these attacks have occurred when an infant is moved from a hospital to a farm or in some cases when a somewhat older infant is moved from a city to a farm and placed on well water containing 20 mg/l or more of nitrate nitrogen. Our own pediatrician, Dr. Mary Boyden, who reported the first case in Kansas shortly after reading Dr. Hunter M. Comly's article in the fall of 1945, reported just a few days ago that she had

* Those desiring more complete information about the construction of wells can obtain a copy of Engineering Bulletin No. 22 from the Kansas State Board of Health.

Suspended Impurities	Bacteria			—some cause disease
	Algae, protozoa			—odor, color, turbidity
	Silt			—murkiness or turbidity
Dissolved Impurities	Salts	Calcium and Magnesium	bicarbonate	—alkalinity, hardness
			carbonate	—alkalinity, hardness
			sulfate	—hardness, laxative
			chloride	—hardness, corrosive to boilers
		Sodium	bicarbonate	—alkalinity, has softening effect
			carbonate	—alkalinity, has softening effect
			sulfate	—laxative
			fluoride	—mottled enamel of teeth over 1.5 mg/l
			chloride	—salty taste over 250 mg/l
	Nitrates			—infant cyanosis or blue baby disease
	Iron oxide			—taste, red water, staining
	Manganese			—black or brown water, staining

seen another case and, as frequently occurs, the family had moved from city to farm soon after the mother and baby came home from the hospital.

In an article published in the September 8, 1945 issue of the *Journal of the American Medical Association*, Dr. Comly demonstrated that infants ingesting high nitrate waters had substantial quantities of methemoglobinemia in their blood. The nitrates are

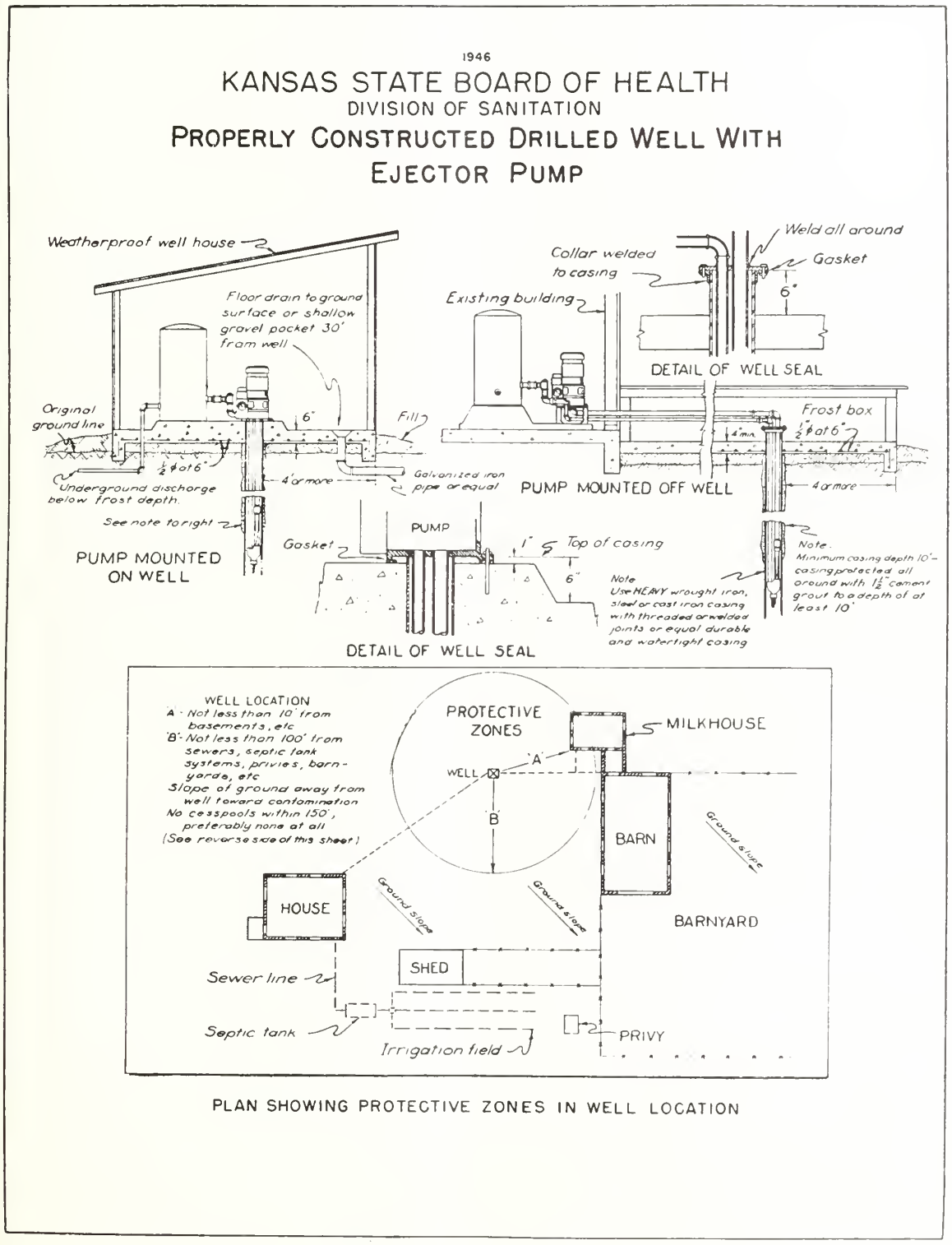

Figure 2

converted to nitrites by bacterial action in the intestine, are absorbed by the blood, and the hemoglobin is changed to methemoglobin by the nitrite. This causes it to lose its oxygen-absorbing properties and, as a result, methemoglobinemia occurs. The change of the hemoglobin to methemoglobin is oxidative, and the iron of the hemoglobin molecule is changed from the ferrous to the ferric state.

Although the exact source of nitrate in well water is not known, it probably comes from the bacterial decomposition of organic matter in the soil. The top soil in Kansas contains up to several tons of nitrates per acre. These are soluble and leach into the water supply, particularly, it appears, in shallow aquifers with a low water yield. This is borne out by the observation that 48.7 per cent of the dug wells covered in a study by the water laboratory contain more than 10 mg/l of nitrate nitrogen, while 20.8 per cent of the drilled wells exceeded this concentration. Driven wells were almost uniformly safe.

Since the nitrates cannot be removed, and in fact are concentrated by boiling, the only safe solution is to use a known low-nitrate source of water for infants. With only a few exceptions, water from all municipal supplies in Kansas is low in nitrates. The exceptions are Fall River, Irving, Lucas, Randall, Formoso, Kirwin, Luray, and Wilson.

Some studies now being carried on under a grant from the National Institutes of Health by chemists, engineers, and geologists of the University of Kansas, the State Board of Health, and the U. S. Geological Survey indicate that special well construction may seal out the high nitrate waters and permit pumping water of lower nitrate concentrations.

Sodium is an important water constituent, especially for persons having some of the common diseases of the heart, kidney, and liver. Patients with such diseases are unable to rid themselves of sodium, allowing large amounts of sodium-containing fluid to accumulate. If one assumes an average water intake of 2.5 liters, water containing 200 milligrams per liter allows the patient to receive 500 milligrams of sodium per day from water alone. This amount of sodium is not harmful to normal individuals.

Patients under restricted sodium therapy should not use water softened by zeolite. Zeolite softeners replace the calcium and magnesium ions by sodium in the ratio of 2 atoms of sodium for each atom of calcium or magnesium, thus increasing the sodium content of the water. About 240 mg/l of sodium as sodium is added for each 500 mg/l of hardness removed.

The natural salt deposits in Kansas and oil field brine pollute some well waters with sodium chloride. Chloride cannot be tasted at concentrations below 250 mg/l. At higher concentrations it imparts a salty taste which becomes unpleasant above 400-500 mg/l. It has no other health significance.

Iron and manganese occur in much of the ground water in Kansas. They have no health significance, but they do give water a bitter, unpleasant taste and a cloudy or rusty appearance. Dug wells high in iron may show a rainbow of colors on the surface as from a thin oil film.

Role of the Local Health Department

Nineteen counties in Kansas are served by full-time local health departments, and two of these, Sedgwick and Wyandotte, maintain laboratories for bacteriological analysis. Sanitarians, working under the direction of the health officer, survey private wells upon request and collect samples for analysis only if the well is protected against contamination. Except in Sedgwick and Wyandotte counties, these samples are mailed to the State Water Laboratory where the analyses are made and the results returned to the local health department.

The remaining 86 counties in Kansas have part-time local health officers who are in private practice. In general, these have no staff to survey wells and collect water samples, so persons wanting water tested often request the service directly from the State Board of Health. They are supplied a questionnaire to assist in describing the location and construction of the well and a sterile container. A charge of $2.00 per sample is made for the bacteriological analysis and interpretation of the results. Chemical determinations are also made by the laboratory where this information is needed.

When voluntary groups such as 4-H clubs carry out water supply improvement programs, they are urged to first make a sanitary survey of each well, checking for defects of location or construction. Engineering Bulletin No. 22 is used as a guide. Only after the recognized defects have been corrected and the well or cistern chlorinated, is testing for bacteria justified. Where local health departments assist with the program, including the collection of samples, no charge is made. In other cases the laboratory is required to make the charge.

In summary, 38 per cent of Kansas residents depend upon rural water supplies, so the problem posed by contaminated wells and cisterns is an important one. The ground water in Kansas is relatively hard and of safe bacterial quality as it occurs in the ground, but faulty construction allows many rural wells to be contaminated with fecal organisms. High nitrates and sodium pose health problems to special groups; fluoride-deficient waters occur over most of

the state although some western Kansas waters have the optimum amount. High sulfate waters in some areas are laxative, especially to persons not using them regularly. The other chemical components of Kansas waters have little health significance, although some affect taste and physical characteristics. Water samples are analyzed in the Water Laboratory of the Kansas State Board of Health, and bulletins showing recommended well construction can be obtained from the Board.

Kansas State Board of Health
State Office Building
Topeka, Kansas

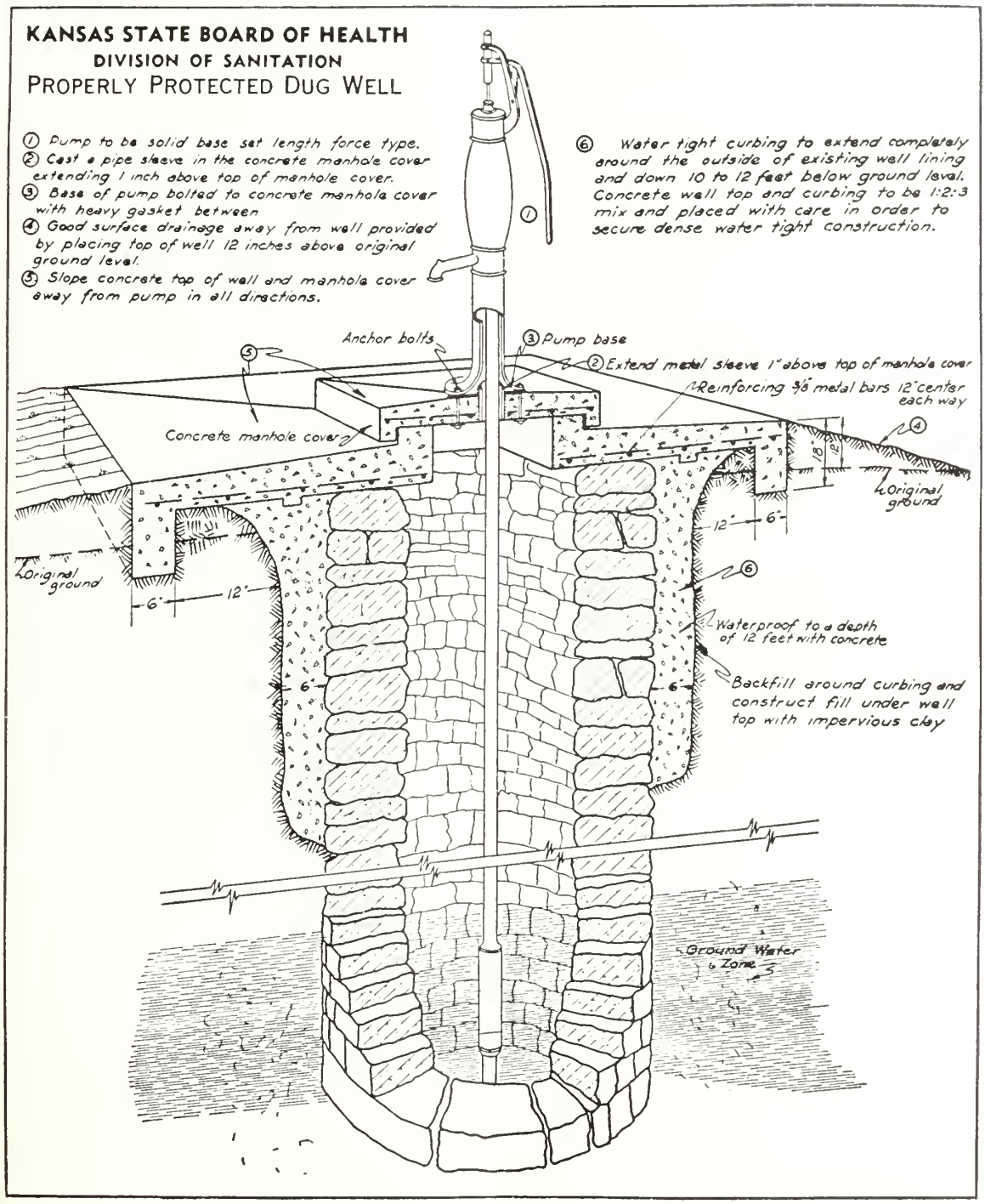

Figure 3

Skin Cancer

The Sun as a Carcinogenic Agent

H. C. BLAYLOCK, M.D.; J. V. VAN CLEVE, M.D.;
J. P. BERGER, M.D., *and* W. H. FRITZEMEIER, M.D., *Wichita*

Physicians see many paradoxes in medicine. Nature provides one of the greatest paradoxes of interest not only to the physician but also to the rancher and farmer. The sun is the life-giving blood of all things yet may be a Nemesis to many individuals.

That certain physical agents act as carcinogens has long been established.[1] The repeated contact of the skin with tars and petroleum oils, and inhalation or ingestion of arsenic compounds, are capable of producing skin cancer. These etiological agents are rare compared to the largest single factor—the sun—in predisposing to skin cancer. Although the actual cause of carcinoma of the skin is unknown, the prevalence of cancer on areas of the body exposed to the actinic rays of the sun, and the fact that 90 per cent of cancers of the skin occur on the face and dorsum of the hands, and, further, that skin cancer is much more common in the southern states than in northern latitudes, all tend to point to the actinic ray as a potent carcinogenic agent[2] (Figure 1).

The problem of weathering in the farmer and rancher is presented. The carcinogenic element of the sun is reviewed. The appearance of senile keratoses and their subsequent potential in regard to malignancy are discussed. Prophylactic measures are outlined as to prevention and treatment of weathering of the skin and senile keratoses which may eventuate.

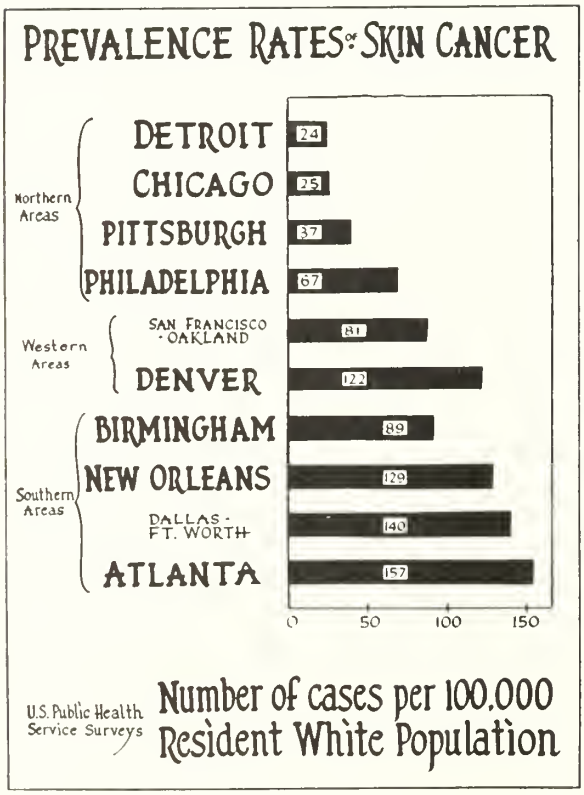

Figure 1

Experimental cancer of the skin of animals has been produced by Findley[3] by exposure to ultraviolet light (2500-3000 A. U.). Roffo,[4] of the Cancer Institute of Buenos Aires, found that in humans the more potent wave-lengths were from 1800 to 3400 A. U.; he also found an abnormally high content of cholesterol in the skin of these same individuals.

As to the mechanism of solar carcinogenesis, Mackie[5] concludes that collagen degeneration of the skin arises in persons with inadequate cutaneous pigment from excessive exposure to solar radiation. By altering the nutrition of the epidermis, collagen degeneration predisposes to the development of solar keratoses, kerato-acanthoma, squamous cell carcinoma, and basal cell carcinoma. When this degenerative process is present in a moderate degree, it can intensify and accelerate other carcinogenic influences. Mackie further implies that the carcinogenic effect of ultraviolet light is mediated by its primary action on the dermis.

Further studies reveal the blonde, blue-eyed, thin-skinned individual is a more likely candidate for malignant skin change.[6] Epitheliomas appear to be rare in the Negro. In addition to complexion and exposure to the actinic rays of the sun, time is an essential factor. The sun received last year, five years ago, or the sunburn received on a picnic is not enough stimulus to cause cancer.[7] More pertinent is the com-

bination of sun and wind received from repeated daily exposure over a period of years, producing a weathering effect, or so-called "Farmer's Skin." This weathering effect is seen also among sportsmen, the golfer, and the sun worshipper.

In the areas of weathering, on the face, back of the neck, and back of the hand, senile keratoses may develop. These keratotic lesions may appear in the twenties, but are seen more commonly in older age groups. The malignant change in these lesions is from 20 to 30 per cent.[1] Clinically, these lesions in the early stages are more easily felt than seen. As time progresses, senile keratoses become visibly evident as rough, non-painful, wart-like lesions with a reddish base. The lips, especially the lower lip, undergo a similar change with keratoses or leukoplakia. Senile keratoses should not be confused with seborrheic keratoses which are darker in color, usually smooth, with a greasy scale, and are found in oily areas of the temples, cheeks, scalp, and back.

Histologically, senile keratoses are difficult to differentiate from squamous cell carcinoma as evidenced by the term "squamous cell, grade one-half," in Lever's *Histopathology of the Skin.*[8] However, a biopsy is often indicated to determine whether or not squamous cell degeneration has occurred. Also, basal cell carcinoma is a frequent occurrence in these weathered individuals.

For those interested in preventive medicine, certainly this presents a great field to be explored. If these keratoses can be prevented or eradicated, an appreciative and healthy patient can be anticipated. Individuals with Nordic type complexions, chronically exposed to the sun, should be encouraged to protect themselves by the use of chemical sunscreens, protective clothing, broad-brimmed hats, umbrellas on tractors, and sun shields on cars. Periodic examination of patients with keratoses should be conducted.

The removal of precancerous keratotic lesions should be carried out by a procedure to prevent scarring. These individuals will, with time, develop new lesions. Therefore, cosmetically, one should seek to avoid scarring with the removal of each keratosis.

Borderline lesions will necessitate a biopsy and a resultant scar. The use of dry ice, liquid nitrogen, trichloracetic acid, and podophyllin is valuable in removal of keratoses without leaving a scar. Lesions which are more intense may require electro-surgery and curettage. Antibiotic salves, acting as an emollient and inhibiting secondary infection, have been found, by the author and associates, to be of value.

Once malignant change has appeared, as proven by biopsy, then routine removal should be accomplished by electro-surgery, surgical excision, or radiation. Routine pathologic examination of all suspicious lesions is a necessity to the practice of good medicine.

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It is all very well to say that foreign policy is far removed from the daily activities of the ordinary citizen, but it is true only to a limited extent. Our representatives abroad, being Americans, respond to the climate of opinion in America as surely as the rest of us do . . . which means that an uninformed or misinformed public opinion will gravely affect the operations of foreign policy in every corner of the earth.

—*Theodore R. McKeldin*

General Practice in Kansas

Study in Selected Communities of Less Than 3,000 Population

JESSE D. RISING, M.D., MAHLON DELP, M.D., *and*
EDITH P. WEINBACH, B.J., *Kansas City*

As a producer of educational programs for physicians, this department of postgraduate medical education is vitally interested in the needs of both generalists and specialists. We need to know the basic and general as well as the unique and specific educational requirements of all of our actual and potential student body. Some educational demands are fundamental to medicine and involve only the standard policy toward subject material and sound techniques of presentation. We have, however, been concerned with the possibility that the general practitioner might need a variety of information and presentation quite different from that of other physicians. A search for information dealing with the daily activities of generalists yielded numerous opinions but few facts. It is obvious that no opinion is of particular value to us unless it is based on evidence which is valid in our own region of responsibility.

The faculty of the University of Kansas School of Medicine numbers among its members a group of rural preceptors who practice in communities of less than 3,000 population, and it occurred to us that, with the aid of these preceptors and their students, we could secure valuable information concerning the nature of their practices. It was understood from the onset of this survey that the preceptors would not necessarily be typical of the general practitioners of the region because they are a selected group of physicians who are interested enough in medical education to sacrifice both time and money to aid in the training of undergraduate medical students, and because all of them are located in rural communities.[2] The patient material and medical problems are, however, quite representative of rural Kansas, and, if the findings of an excellent analysis of medical practice in the state of Washington[1] can be applied to Kansas, we can assume that urban conditions do not differ fundamentally from rural ones.

Method

In our study the practice of each of 64 preceptors was surveyed by a student. Each student, or preceptee, used check-sheets on which to record information concerning 100 consecutive patient visits in each preceptor's practice. Patients were unselected, and each student was permitted a choice of time for the initiation of his study. Completed check-sheets reported the age and sex of each patient and whether the visit was the initial one or a revisit. Thirty-four diagnostic categories were listed including visits for immunization, well baby care, and routine examinations of well individuals. Students indicated on the sheet where the patient was seen, the type of treatment administered, any diagnostic laboratory work that was done, and whether consultation was obtained or the patient referred to another physician. These data were then tabulated on IBM cards which were used to get a composite picture of general practice in the rural communities of the state.

Results

Analysis of the 6,400 patient visits showed that diseases of the respiratory tract constitute a large share of the general practitioner's work (Table I). Upper respiratory affections accounted for 1,036 of the 1,215 patient visits recorded in this category as compared to 179 cases of involvement of the lower respiratory tract.

Approximately 10 per cent of the patient visits were for obstetrics, only 81 of the 657 patient visits

This study, based on data reported by rural preceptors and medical students in Kansas, was attempted to provide information on the type of postgraduate medical education that would be most beneficial to a general practitioner in a small community. Information gained from 100 consecutive patient visits to each of 64 physicians is tabulated according to diagnostic classes, age groups, sex distribution, place of performance of therapeutic measures, consultations and referrals, and laboratory utilization.

Department of Postgraduate Medical Education, University of Kansas School of Medicine.

TABLE I
SUMMARY OF DIAGNOSTIC CLASSES

	No. of Visits	*% of Total*	*% First Visit*	*% Re-Visit*
1. Respiratory	1,215	19.0	56	44
2. Obstetrical	657	10.3	14	85
3. Cardiovascular	608	9.5	20	80
4. Gastrointestinal	556	8.7	44	55
5. Musculoskeletal	510	8.0	33	65
6. Trauma	461	7.2	49	50
7. Dermatologic	360	5.6	44	54
8. Routine Examination and Well Baby	321	5.0	54	44
9. Gynecologic	287	4.5	31	68
10. Urologic	273	4.3	30	67
11. Emotional	273	4.3	23	74
12. Immunizations	169	2.6	43	57
13. Neurologic	162	2.5	21	77
14. Metabolic	122	1.9	14	85
15. Other	115	1.8	30	68
16. Ocular	97	1.5	62	37
17. Infectious Diseases	87	1.4	52	46
18. Hematologic	52	0.8	14	85
19. Malignant	41	0.6	17	81
20. Venereal	27	0.4	30	70
21. Parasitic	5	0.1	60	20
22. Deficiencies	1	0.02	0	100
23. Poisons	1	0.02	0	100
Total	6,400		37	61

were for obstetrical delivery, and 14 were for spontaneous abortion as compared to 465 prenatal and 97 post partum visits.

Other categories rank about as one might expect, and it is encouraging to note that five per cent of the visits were for routine examinations and well baby care. Immunizations were listed separately from the well baby examinations. In the former the doctor spent little time examining the child or talking with the parents, and he or an assistant simply administered the injection. It is disconcerting, but not surprising, to note how rarely adults present themselves for routine examinations and immunizations.

Over one-half of the patient visits for respiratory affections were first visits, whereas only about one-eighth of the obstetrical visits were in this category. A high percentage of the cardiovascular and musculoskeletal patients were revisits, and less than one-fourth of the patients with predominantly emotional problems were seeing the physician for the first time.

It is somewhat surprising, in the light of recent claims that a high percentage of the general practitioner's patients have primarily emotional disorders, to find that patients diagnosed as having predominantly emotional problems constitute only 4.3 per cent. In this respect it should be noted that the students did not classify peptic ulcer, hypertension, etc., in this group, but were instructed to include everything which, in their opinion, was primarily emotional. Students arrived at diagnostic classifications with the advice of their preceptors, but all students were at a stage in their undergraduate career preceded by rather full indoctrination in psychiatry.

Acute communicable diseases were included in the category of "infectious diseases." This category does not therefore reflect the importance of infections in these practices because respiratory, dermal, genitourinary infections, etc., were included in the appropriate categories.

An interesting feature stands out in the various diagnostic categories and the age distribution of patients as shown in Table II: 23 per cent of the patient visits were in the pediatric age group (under 15 years), and 24 per cent were in the geriatric age group (60 years and over). In other words, about half of the generalist's practice is in the areas of pediatrics and geriatrics, the extremes of life.

The practices under study were dominated by medical as compared to surgical and obstetrical patients (Table V). Naturally enough, the obstetrical visits were largely in the 14 to 40 age groups, and gynecological problems were most frequent in the 22- to 50-year-old patients.

Age trends in other diagnostic categories were about what one would expect. The majority of infectious diseases occurred in pediatric patients; the incidence of dermatologic and musculoskeletal problems and trauma was highest in the middle ranges of age; malignancies and neurologic disorders (largely Parkinsonism) were concentrated in the geriatric age group.

Aside from the obstetrical and gynecological cate-

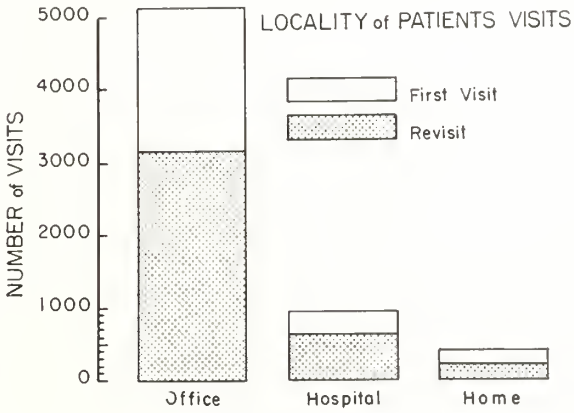

Figure 1

gories, only a few outstanding differences in sex distribution were noted (Table III). There was a distinctly higher incidence of visits by females for metabolic and emotional problems, whereas males more often sought assistance for trauma and eye trouble. In general, females accounted for a greater proportion of the physician's practice than did males, largely because of obstetric and gynecological problems.

The vast majority of patients, both first visits and revisits, were seen in the office (Figure 1). This is in contrast with our stereotype of the "horse and buggy doctor" who made numerous house calls. Modern facilities and transportation seem to have created an increasing centralization of practice about the physician's office. No significant trend could be seen in the number of first visits as compared to revisits in the office, home, or hospital.

The students listed the major therapeutic measures used in the treatment of each patient, but not necessarily the one employed on a particular visit. For example, if the patient had surgery in connection with the illness under consideration, this was indicated on the check-sheet. Obstetrical patients, on the other hand, were checked according to the procedure connected with the particular visit, i.e., prenatal examination, post partum visit, or obstetrical delivery. The category of minor surgery included only procedures which can ordinarily and safely be carried out in the office or in the home without general anesthesia and without highly skilled assistance—procedures which carry no expected mortality. All others were considered as major surgery, including the re-

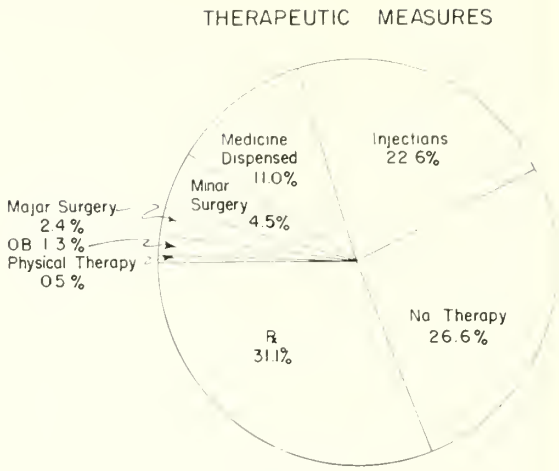

Figure 2

TABLE II
DIAGNOSTIC CLASSES BY AGE GROUPS

	Total	% under 2	% 2-4	% 5-9	% 10-14	% 15-21	% 22-29	% 30's	% 40's	% 50's	% 60's	% 70's	% 80's
1. Respiratory	1,215	18	11	15	5	5	7	10	8	8	7	4	1
2. Cardiovascular	608	1	0	1	1	1	1	3	7	14	28	31	12
3. Gastrointestinal	556	8	4	5	3	4	8	13	13	13	11	10	6
4. Obstetrical	657	0	0	0	1	18	49	28	3	0	0	0	0
5. Gynecologic	287	0	0	0	1	9	21	30	20	10	3	4	0
6. Urologic	273	5	2	7	1	2	6	10	11	17	16	14	9
7. Venereal	27	0	0	0	0	11	37	15	15	11	0	11	0
8. Infectious Diseases	87	11	15	23	14	7	6	6	1	2	11	2	0
9. Parasitic	5	0	0	40	0	40	0	6	1	2	11	2	0
10. Dermatologic	360	7	3	6	7	11	8	15	13	11	9	7	3
11. Musculoskeletal	510	1	2	3	5	8	7	11	16	12	17	13	5
12. Metabolic	122	1	0	0	3	3	7	9	12	11	20	26	5
13. Deficiencies	1	0	0	0	0	0	0	0	0	0	0	0	0
14. Hematologic	52	6	2	2	2	2	4	10	10	19	17	19	4
15. Malignant	41	0	0	0	0	0	0	2	10	5	24	44	17
16. Ocular	97	3	4	8	7	8	8	22	14	9	8	2	5
17. Neurologic	162	2	0	3	3	5	4	7	11	13	20	17	12
18. Emotional	273	1	1	2	3	6	10	19	17	14	16	9	3
19. Trauma	461	4	7	9	10	13	10	11	11	9	5	5	4
20. Poisons	1	0	0	0	0	0	0	0	0	0	0	0	0
21. Routine Examination and Well Baby	321	52	3	2	5	14	6	4	5	4	2	2	0
22. Immunizations	169	36	10	15	2	3	3	6	8	5	9	3	0
23. Other	115	4	2	10	4	8	7	11	11	11	10	11	10
Total	6,400	9	4	6	4	8	12	13	10	9	11	9	4

TABLE III
SEX DISTRIBUTION IN DIAGNOSTIC CLASSIFICATIONS

	Total	*% Female*	*% Male*
1. Respiratory	1,215	48.1	51.9
2. Cardiovascular	608	54.6	45.4
3. Gastrointestinal	556	49.1	50.9
4. Obstetrical	657	100	
5. Gynecologic	287	100	
6. Urologic	273	45.4	54.6
7. Venereal	27	40.7	59.3
8. Infectious Diseases	87	47.1	52.9
9. Parasitic	5	40	60
10. Dermatologic	360	50	50
11. Musculoskeletal	510	54.9	44.9
12. Metabolic	122	79.5	20.5
13. Deficiencies	1	100	0
14. Hematologic	52	59.6	40.4
15. Malignant	41	46.3	53.7
16. Ocular	97	40.2	59.8
17. Neurologic	162	48.8	51.2
18. Emotional	273	75.1	24.9
19. Trauma	461	33.6	66.4
20. Poisons	1	0	100
21. Routine Examination and Well Baby	321	47.4	52.6
22. Immunizations	169	51.5	48.5
23. Other	115	57.4	42.6
Total	6,400	57.9	42.1

duction of fractures under anesthesia, tonsillectomies, hemorrhoidectomies, and the like.

Prescriptions and medications on hospital orders ranked first among therapeutic measures, as might be expected (Figure 2). The second largest group of patients received no specific treatment; this group included those seen for routine examinations, diagnostic work-ups, simple advice, and psychotherapy.

Only 81 obstetrical deliveries were reported as compared to 465 prenatal and 97 post partum visits, but even this represents only seven pre- and post partum visits per delivery. Over 90 per cent of the obstetrical deliveries were done in the hospital (Table IV). This illustrates the well known reversal of the situation of 30 or 40 years ago when most babies were delivered in the home.

Major surgery was the definitive treatment associated with only 2.4 per cent of the patient visits, in spite of the fact that many relatively minor procedures ("lesser major surgery") were included in our classification. Most major surgical procedures were performed in the hospital. Even in the category of minor surgery (which included mainly the suturing of lacerations, incision and drainage of furuncles, the removal of sebaceous cysts, and the like), over 20 per cent of the procedures were done in the hospital.

The largest proportion of patients referred to other physicians for definitive treatment came from the category of major surgery (Table V), and a fairly large percentage were referred even for minor surgery. Consultation was obtained in connection with 7.2 per cent of medical patients, and 2.8 per cent of them were referred to specialists.

The laboratory work tabulated indicates the frequency with which various diagnostic procedures were ordered (Table VI). This does not reflect the frequency with which these procedures were ordered on each patient, but rather the number of times they occurred in relation to the number of patient visits. A urinalysis or blood count obtained at an earlier visit or a subsequent one was not indicated in our data.

TABLE IV
PLACE OF PERFORMANCE OF THERAPEUTIC MEASURES

	Total	*% Office*	*% Home*	*% Hospital*
Prescriptions and Hospital Orders	1,995	84.4	7.1	8.5
Injections	1,444	68.0	9.2	12.8
Medicine Dispensed	702	94.0	6.0	0.0
Minor Surgery	288	76.4	2.1	21.5
Major Surgery	155	7.1	1.3	91.6
Obstetrical Delivery	81	3.7	2.5	93.8
Physiotherapy	31	100.0	0.0	0.0
No Therapy	1,704	81.2	4.0	14.8
Total	6,400	80.0	6.1	13.9

Discussion

Sweeping generalizations cannot be made from data obtained on a small scale, and even a large sample can lead to false conclusions unless all factors are closely examined. In an attempt to interpret the

TABLE V
CONSULTATIONS AND REFERRALS OF VARIOUS TYPES OF PATIENTS

Type of Patient	*No. in Group*	*% Consultation*	*% Referral*
Medical	3,141	7.2	2.8
Major Surgical	157	21.0	15.9
Minor Surgical	289	8.3	4.5
Obstetrical Deliveries	81	1.0	1.0
Obstetrical Visits	576	1.9	0.0

present survey, several important points must be kept in mind. The physicians surveyed constitute a selected group. For our purposes this poses no problem; the cross section of medical problems is representative, and the degree of sophistication of the physician would not alter our educational approach.

Above all, numbers alone do not necessarily constitute a valid criterion of the importance of any parameter. It is likely that many of the patient visits in some categories represent the more or less superficial attention of the physician to routine and often trivial problems, whereas some of the visits in the categories rating low in frequency may well represent problems that make severe demands on the knowledge, skill, patience, and time of the physician. The latter deserve greater emphasis in our postgraduate teaching. It has previously been demonstrated that the causes for patient's visiting physicians do not correlate with the causes of death.[1]

When these data are used to help in planning educational programs they must be carefully evaluated, but it is useful to have an idea of the frequency with which certain general types of problems are encountered and the environment in which they are met. It is implicit that increasing attention must be given to the diagnostic and therapeutic problems of everyday office practice, and that instruction relating exclusively to the problems of home diagnosis and treatment cannot justifiably receive a great deal of emphasis. The importance of medicine in the extremes of life, while often stressed, is well documented in this study, and it behooves educators to give full consideration to these phases of medicine when formulating their programs.

The question of minor surgery in general practice (as it is defined in this study) is not ordinarily a controversial one, and it appears that a significant proportion of the generalist's practice is and will continue to be in this field. Major surgery, on the other hand, is much more debatable. The data secured in this study demonstrate that general practitioners must continue to have adequate training in surgical diagnosis. How much major surgery, including "lesser major surgery," the generalist can and should do will continue to be a matter of disagreement, and these data do not help to resolve the question. It is interesting that the general practitioners involved in our survey choose to do little major surgery in spite of their geographic situation.

TABLE VI
LABORATORY SUMMARY

	Number	*% of 6,400*
Urinalysis	1,389	21.7
Blood Count	796	12.4
X-ray	372	5.8
Blood Chemistry	133	2.1
Electrocardiogram	92	1.4
Serology	45	0.7
Rh	14	*0.2
Gastric Analysis	8	0.1

* 17% of deliveries

Obstetrics constitutes an important part of the practices surveyed, and it appears that it will continue to do so because the small number of obstetrical deliveries suggests that the specialists would not find the specialty economically practical in communities of this size. Educational plans must be made accordingly. It is possible, in some instances, for patients to receive prenatal care from the local general practitioner, and then go to an obstetrician some miles distant for delivery, but present concepts of the best obstetrical practice dictate that the physician delivering the baby should supervise the prenatal and post partum care. In a large part of Kansas, at least, the general practitioner is the logical physician to do much of the obstetrics at present. He must, therefore, be adequately prepared to meet this responsibility, and must be given opportunities in postgraduate study to keep up with advances in this field. A little missionary work related to optimal prenatal and post partum care would also seem to be in order.

Potential weaknesses in the medical practices studied may point to the formulation of postgraduate programs that will improve everyday diagnostic and therapeutic measures, consultation and referral patterns, and the use of routine laboratory studies. One may not be justified in concluding that consultations and referrals are not used optimally, but even a superficial examination of the figures (Table VI) leads to the conclusion that diagnostic laboratory procedures could be used more often. For example, there were 608 cardiovascular patients (20 per cent being seen for the first time), and only 92 electrocardiograms were reported. Problems of health supervision and preventive medicine seem to need emphasis among physicians as well as the laity.

Our conviction has been strengthened that we must look to the building of programs of good medicine suitable for all physicians, the general practitioner as well as the specialist. The old concept of producing an elementary type program for the general practitioner must be discarded, and he must be given equal opportunities with the specialists to receive the same sound and scientific information in medical diagnosis and therapeutics.

Summary

A study of rural general practice in Kansas was conducted with the help of University of Kansas rural preceptors and medical students. One hundred consecutive cases from each of 64 preceptors, a total of 6,400 cases, constitute the basis of the study. Various diagnostic and therapeutic data are presented, together with information pertaining to sex, age distribution of patients, and location of practice.

The practices under study showed a predominance of medical over surgical and obstetrical patients, and about half of the visits were by patients in the pediatric and geriatric age groups. A great many visits were for upper respiratory infections. The bulk of the patients were seen in physicians' offices.

Information obtained in this survey concerning the occurrence of certain types of medical problems, the environment in which they are met, and how the doctor meets them, fortifies our opinion that general practitioners need the same high caliber of postgraduate medical education as the specialist. There can be no defense of the idea that general practitioners should be offered second-rate postgraduate programs, but medical educators must take into account the fundamental as well as the specific educational needs of the general practitioner. His professional activities are many and varied, and it is necessary to meet his diversified needs with fundamental information in the basic medical sciences, laboratory and bedside diagnosis, therapeutics, and preventive medicine.

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The medical profession has been shown repeatedly that it must recognize the present economic trends as powerful factors in the distribution of medical care. The general public has become deeply interested in health and welfare. The desire of the public to have prepayment medical protection of some type is so urgent that it will buy this protection from whichever plan seems most enticing. These plans may be union operated, have no free choice provision, and be in complete variance with medical society philosophy. . . . We cannot say that our only interest is in the care of the sick, that political and economic problems are not vital to our well-being and essential to the successful struggle against disease. Man has the same right to medical care as he has to food, clothing, and shelter. All these requirements are dependent on each other, but medical care offers more appeal as a target to those who are trying to improve man's welfare. . . .

No agent, organization, or bureaucracy can provide medical care. The doctor alone can provide it. The relations between the patient and his doctor must be confidential and privileged. The Blue Shield plans which protect this principle, were organized by doctors when commercial units said health insurance plans were not possible. . . . I believe that we should very seriously consider offering total coverage by service benefits to all persons. The increase in demand for health services might outweigh any economic loss. Whether you like it or not, prepayment medical care is here to stay. Let us support the most complete and efficient system possible—a system which is voluntary and over which we have adequate control.

Dr. Leo E. Gibson
New York State Journal of Medicine

Rural Health

Development and Success of the Kansas Plan

ALVIN S. McCOY. ***Kansas City, Missouri***

It has been said in jest that whoever coined the phrase "rural health" insured the success of the Kansas program for making modern medicine available to the sparsely-settled regions of the state.

The term impinges on the eardrums of farm members of the Legislature pleasantly. The support of the Kansas Farm Bureau, and farmer legislators, played a significant part in launching what is today a highly successful plan for providing doctors to the rural areas of a farm state.

The tag "rural health," of course, was supplied by Dr. Franklin D. Murphy, then dean of the University of Kansas School of Medicine, and now chancellor of the university. It was a phrase that stuck. A decade later Kansans still refer to a continuing program for supplying doctors to less-populated centers as their "rural health plan." They do so casually, as if unconscious of a miracle that has been wrought.

As one who observed the program at its onset ten years ago, I still recall the inspired enthusiasm of Dr. Murphy, a determined man, determined that the full import should penetrate even a newspaperman's thick skull. He applied all his skill as a super salesman to the project.

In essence the plan was simple. Dr. Haddon Peck, of St. Francis, then president of the Kansas Medical Society, and Dr. Murphy formed a team. They correctly diagnosed the patient's ills. The state was losing doctors. The one state medical school, producing 80 a year, was unable to keep up with attrition, deaths, and age. Some 70 rural communities were clamoring for doctors they couldn't get. There were not enough doctors, and the new crop was not going into the rural districts.

The prescription did not seem complicated. First, it was necessary to turn out more doctors. It takes more hospital beds to teach more students. Dr. Murphy determined it would require a state appropriation for new buildings of nearly 4 million dollars (added to federal funds) to step up the school's output to 120 doctors a year.

Next, how could young doctors be persuaded to go into rural communities and practice under a free choice system? Interviews with many determined that they feared two things, shortage of funds and "being medically isolated." To meet the first, Dr. Murphy exhorted, pleaded, and urged local communities to build clinics or hospitals, lease them to doctors, and advance funds for modern medical equipment. The second could be met by postgraduate courses, taking medicine on the road, with professors lecturing on medical advances in Kansas towns at regular intervals.

Dr. Murphy made countless speeches. Many recall that the 4-million-dollar appropriation bill sailed through the House of Representatives as if it were something sacred. The only negative vote was by an undertaker. The furor in Kansas attracted attention from doctors outside the state even before the larger classes could be produced. The first arrivals were given community dinners and celebrations.

Within a few years the trend was reversed. Kansas began producing more doctors than it was losing. Gaps in the rural sections slowly filled. In part, this may have been due to an increased emphasis on general practice at the medical school and student observers sent to watch rural doctors in action.

Today, ten years later, it is startling to learn that any county in the state is without a medical doctor, as may happen in the inevitable turnover. Kansas takes its rural health program for granted. Seldom does it occur to anyone that the state has been amazingly successful under free choice of supplying the best in medical care to its citizens.

The "grassy quadrangle," 200 by 400 miles, is dotted with hospitals, perhaps too many by some standards. Facilities are available for the practice of medicine as it should be practiced. The community still seeking a doctor is the exception.

Significant is the fact that communities which have one doctor now are seeking a second or a third. The cry of a child in the night no longer brings dread to the hearts of parents. For most of Kansas, modern medicine is close at hand.

EDITOR'S NOTE: Mr. McCoy, of the *Kansas City Star*, played an active role in "selling" the Kansas Plan at the time of its inception through a series of articles outlining the project.

Geriatrics

Old and Sick—Down on the Farm

E. GREY DIMOND, M.D., ***Kansas City***

Approximately two years ago, Dr. Barrett A. Nelson, then president of the Kansas Medical Society, asked me to be chairman of a new committee, the Gerontology Committee. A knowledgeable and sincere group of physicians accepted appointments on this committee.* More recently, Dr. Thomas P. Butcher, Dr. Nelson's successor, asked us to continue.

As a committee we have made a dogged effort to acquaint ourselves with the probable responsible areas of such a committee: nursing homes, insurance for older persons, visiting nurse programs, civic senior citizen centers, retirement versus past-65 employment, etc.

Now after two years, certain distinct impressions and facts have clarified themselves. This article is perhaps a progress report on the education and maturation of a Gerontology Committee. More specifically, it reflects my own personal interpretation of America's unique social position: So successful has been the American social scheme, that it has made possible for us to create an entire new class of people . . . people who, since the beginning of time, existed in such minor numbers that their presence was one of honor, yet who, in our culture, have survived in proportions far beyond our anticipation. I say "far beyond our anticipation" because as this new strata of society appeared, other evolutions steadily eliminated a role or place for the older citizen.

The American is migratory. A son does not remain at home. In fact, he neither remains at home, or on the same farm, or in the same town, or state. The characteristic American family unit is not one which provides a position for father and mother. Instead, the children marry, establish totally individual homes, with no emotional or physical provision made for the "folks." When old age does come, the children may "pass Mom around among them," or "chip in" to keep her in an "old folks' home," or, if chance provides, place Mom and an unmarried sister together. Mom and Dad may be loved, respected, and supported—but it is the rare American home which has the capacity to shelter them, physically, financially, or spiritually.

This American dilemma, a society which is based on youth and change and growth, but a society which has brought an immense percentage of its citizens through the dangers of childbirth, childhood infections, starvation, tuberculosis, diabetes, pneumonia, etc., etc., etc., on to old age, finds its problem compounded by its wage earning habits. Men past 65 are simply not wanted in industry. Government attempts at buffering by old age allotments have eased but not solved the problems of day to day living for this group.

With one-eighth of our population now beyond the age of 65, Medicine is becoming increasingly aware of its responsibility to our senior citizens. Plans must be evolved to provide adequate medical care in a way that will preserve the dignity of the individual. In Kansas this problem is being studied by a Committee on Gerontology.

It is when this group of "old folks" becomes ill that the issue clearly becomes one in which organized medicine must be involved—in fact more than involved, it must take active leadership, and insist in having a voice and a leading role. If the physical well being of an immense segment of our population is suffering from lack of adequate lodging, nursing, hospital care, and even medical care, then this is Medicine's challenge.

Solution by effecting a social revolution and recreating the American's home life into a stable, patriarchal mold is improbable—and perhaps not a solution which organized medicine can identify as its responsibility. Solutions utilized by other West-

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Dr. Dimond, professor of medicine at the University of Kansas School of Medicine, prepared this study at the request of the Editorial Board after his return from a national conference on geriatrics.

* Gerontology Committee Members: Dr. J. O. Austin, Garden City; Dr. L. J. Beyer, Lyons; Dr. J. M. Catlett, Emporia; Dr. T. Dechairo, Westmoreland; Dr. D. M. Diefendorf, Waterville; Dr. F. E. Dillenbeck, El Dorado; Dr. G. M. Edmonds, Horton; Dr. H. A. Flanders, Hays; Dr. V. L. Jackson, Altamont; Dr. Ronald McCoy, Coldwater; Dr. J. J. Marchbanks, Oakley; Dr. R. F. Morton, Arkansas City; Dr. T. V. Oltman, Riley; Dr. J. W. Parker, Burlington; Dr. D. V. Preheim, Newton; Dr. E. S. Rich, Newton; Dr. D. L. Rose, Kansas City; Dr. H. L. Songer, Lincoln; Dr. C. E. Stevenson, Neodesha; Dr. G. A. Surface, Ellis.

ern civilizations, based on "cradle to the grave" security, have a repugnant flavor for the free-wheeling, free-enterprise American, layman and physician alike.

The rural states have no less a problem than the cities. Traditionally, the farm family has represented the last example of the strong family unit. As a man aged, he simply transferred his farm responsibility to his children. No arbitrary or forced retirement cut into life's course. The aging parents either remained on the farm, or moved into the neighboring town, secure in their role of advisors and grandparents. This course of events continues in a significant percentage of farm homes, but the movement of children from the farm has also occurred in a greater percentage. The farm becomes a burden of responsibility which the old couple cannot alone physically maintain nor can they enlist sufficient help from children or hired help. The farm becomes a trap.

The changing quality of medical care has further complicated the lot of the aging farmer. The small office of a dispensing physician with one or two rooms for handling his "minor surgery" has been modified into an expensive community complex of physician, nurse, pharmacist, and hospital complete with x-ray and laboratory facilities. To enjoy the blessings of old age, one usually must anticipate an increasing need for medical care. This medical care, because it has become better, more precise, and exquisite, has become tellingly expensive. The farmer will recall the nostalgic days of the "family doctor," offering everything he had from his black bag. Little wonder that the farmer may wonder why this same family doctor today cannot function safely without x-rays, blood tests, and antibiotics. Good medical care costs money. There is no short cut. The methods of diagnosis, the medicines, the hospital bed are all expensive treasures which the aging farmer must have available.

Rural life offers, intrinsic in itself, many of the values sought in cities by "elder gardens," "day centers," "recreation centers." Arbitrary "old age" is not declared by an employer. Issues of seniority are not raised by a union.

As one analyzes the problems of health in rural areas, specifically as they relate to the elderly, it is apparent that the characteristic strength of the farm family does offer a buffer which is lacking in urban areas. However, this is a decreasing buffer. The problems of being old, rural or urban, are significantly similar. Allowing for differences in population density, differences in mobility, differences in family ties, absence of management and union, the problems of being old and sick down on the farm are not different from being old and sick in the city. Hospital beds, nursing care, rehabilitation services, x-rays, laboratories, blood banks, medicines, and doctors are needed.

One's initial response might be that this problem needs detailed study and analysis, that review committees, committees on aging, committees on the aged in industry, committees on retirement programs, committees to survey the literature, committees to collect and collate the literature, etc., should be formed. If there is one single fact which I have gained in these last two years, it is this: sufficient studies in depth have already been done. Immense data are available. All evidence, no matter how obtained, confirms a simple, readily apparent issue: America has an increasing group of citizens past 65, who are not readily employed, cannot obtain adequate insurance, cannot afford nursing home and hospital care (or if they can afford it, cannot find a dependable facility), and for whom our society does not provide proper security, incentive, or status. A thousand more studies will not change these facts. The time is here, now, when organized medicine must vigorously enter into this area, and with clarity and honesty, bring together government, insurance companies, state regulatory groups, and significant foundations and spell out the areas which need action:

1. Suitable physical facilities (chronic disease centers, day centers, nursing care facilities, etc.).

2. Satisfactory insurance coverage so a man can, with pride and dignity, pay his own way.

3. Realistic attitudes about retirement, so a man can work until the day he drops. Our society is not so rich that we can afford to isolate one-eighth of our population on a park bench in the sun. A man may slow down at a certain age but he still creates, plans, and builds. To take away this opportunity is to create disease.

My point is this. Our role in medicine is to prevent sickness and to maintain health. We are finding ourselves in a position where a shockingly large percentage of the people who make up our practice cannot find a reasonable way to occupy their minds and hands. When sickness comes, they can neither afford hospital care nor find it.

These problems then become our responsibility. We must insist on solutions. Where solutions are slow in coming or contrary to what we believe best, we must provide the ideas.

The best possible care is *not* being provided for a segment of our population.

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Rural Practice

The Appeal of a Small Community to a Physician

ROBERT R. SNOOK, M.D., ***McLouth***

I feel highly honored to be asked to write this article for the JOURNAL, although my story will not differ materially from that of many of my friends who have located in small rural communities.

One's personality determines to a large extent which branch of medicine he will pursue, and to some of us complete satisfaction could not be found in a large city associated with a clinic, a health service, or in any other impersonal type of medical practice. The type of patient you will see will differ little whether you do general practice in a large or a small town. The Department of Postgraduate Medical Education of the University of Kansas School of Medicine proved this by a survey of patients for one month in the offices of the preceptors of the medical school. They divided all patients into about 16 categories of medicine and surgery, and all were well represented in my office. It simply boils down to the question, "Where do you want to live?"

In a rural community you live close to your patient. You are aware of his problems and worries, his background and environment. More often than not your patient is the man you see on the street every day or the woman who worships in the next pew on Sunday morning. This relationship has obvious advantages, for the patient as well as his doctor. The patient tends to be relaxed and give a more honest history, the doctor is in a better position to render maximum service. You're in that warm, friendly relationship with your patient that Dr. Harvey Cushing said, "may often yield information more valuable to the physician than anything revealed by a laboratory test."

In a country practice your patients are truly "patient." Not only do they respect my desire to attend medical meetings and classes at the university but they realize I need time for religious and recreational activity. Unless their needs are truly on an emergency basis, they will await my return, and there is no feeling of resentment for my having been gone. I've been a member of the local Kiwanis Club with perfect attendance over the past five years. I teach a men's Sunday School class and seldom miss the morning worship service. I attend our high school athletic contests and take part in most community activities. In fact, in a small town such as ours, everybody goes to everything and actively participates. I inject this paragraph for those who feel the country doctor is overworked and not allowed to live a life of his own.

One of the criticisms I've often heard of country practice is the matter of distances. Actually, this is no problem at all with good roads and modern cars. There is no traffic in the country and nothing to obstruct driving as there is in the city. I enjoy the long country house calls which allow me time for relaxation and meditation. I still get a thrill out of driving home from the hospital just at daybreak and watching the world come alive to the new day. Two of my colleagues in this county keep fishing rods or shotguns in their cars, depending on the season, and find much pleasure in getting up early and enjoying their hobbies before hospital rounds.

I am fortunate in being less than an hour's drive from Kansas City or Topeka and but 20 minutes from Lawrence. This allows the family all the facilities of the larger cities without having to live there and put up with the traffic, noise, and the many other objectionable features of a metropolitan area.

A small rural community is a wholesome environment in which to raise a family. Our four girls live a happy life roaming at will over the town and surrounding countryside. They are unrestricted by big city ordinances and have raised all kinds of animals as pets. In a school system with a small enrollment they have the opportunity to participate in all activities. Their happy childhood should help us raise our children to normal adulthood. My wife likes the advantages of the country community too. People are more friendly and helpful, and I feel our lives have been much fuller since we came here.

If you like people and have a sincere desire for service, if you're not afraid of work, and sometimes it goes on for long stretches, if you won't resent being called "Doc" and realize it is more a term of endearment than disrespect, if it is real living that you want—then you'll find it in a country practice.

Making Agriculture Safe

An Analysis of the Problem and Its Solution

MAYNARD COE, ***Chicago***

One sure thing about tomorrow's agriculture is that it must be safer than in the past. With other industries proving that accidents can be prevented, agriculture no longer can tolerate a safety record that is one of the poorest among all occupations. But as we anticipate hopefully agriculture's improved safety record, we must remember that its price is eternal vigilance plus effective education. That basic philosophy underlies the efforts and plans that are being made by farm safety groups everywhere to reduce the toll that accidents take among rural residents.

In spite of improvements in recent years, agriculture is staggering under a terrific load resulting from needless accidents. Mishaps to farmers cause enough lost time in a year to produce more than half the average annual wheat crop in the United States. Even more serious is the economic loss to farm people of nearly a billion dollars per year resulting from accidents of all kinds.

But the losses in time and money are only a part of the burden resulting from accidents to farm residents. There are approximately 12,000 accidental deaths annually. Another 1,000,000 rural residents are injured, and many of the victims are permanently crippled. They lose hands, arms, legs, and eyes—thus the accident bill for any one year will continue for many years in the future in the form of reduced productive capacity and in personal sorrow and handicap.

Of these 12,000 fatal accidents to farm residents each year, more than one-fourth occur in farm homes. Falls head the list of home fatalities—falls due principally to insecure footing and poor visibility. Next come burns which result most often from misuse of petroleum products or from improper wiring. Many other fatalities result from poisons, mechanical suffocation, firearms, and drowning.

Farm work fatalities number about 3,500. Farm machinery is associated with a large proportion of these fatal accidents because many farm workers persist in improper operation of such equipment. Many farmers meet death from tractors which tip over and from motor vehicles that are involved in farm work accidents.

Motor vehicles not associated with farm work take the lives of more than 5,000 rural people. Careless driving, or course, is the principal factor involved, but the country dweller is faced also by two particular hazards—the blind farm driveway and the lack of sidewalks for pedestrians. Farm people are not average when it comes to exposure to the possibility of severe motor vehicle accidents; they are subjected to hazards considerably above those of others. Farmers have to literally sneak onto high speed highways from secondary roads or from farm driveways. Furthermore, by the very nature of their living, farmers are required to make greater and more varied use of the highways. Not only do they transport themselves from place to place but they also use roadways for moving their products and their equipment.

Then there are the so-called public accidents other than motor vehicle such as hunting, boating, and swimming which account for nearly 1,000 deaths annually among farm families.

Farm fires also take the high toll of nearly 800 deaths per year with a monetary loss of more than $150,000,000.

All this leads to the simple question, "How long will we calmly permit accidents to take such a tremendous toll of lives and property among people engaged in agriculture, not to mention the suffering and other costs involved?" This question becomes even more poignant when it is realized that something *can* be done about it. Those who brush the question off lightly display either an ignorance of the problem or a callousness difficult to understand. The crux of the matter is this: agriculture is far behind most other groups in safety endeavors. Only relatively recently has a beginning been made to reduce farm accidents. If safety education and methods had been applied as intensively on American farms as manufacturers have applied them, the lives of nearly 2,000 farmers might have been saved last year.

Mr. Coe is director of Farm Safety, National Safety Council, Chicago.

Any worthwhile achievement usually is accomplished only by careful planning, taking into consideration all of the factors involved in the situation. What are some of the factors that concern safety in agriculture?

First of all is the multiple exposure to hazards. The farmer engages in a wide variety of operations so that he does not develop the high degree of proficiency that is acquired by the man on the factory production line who performs the same operation day in and day out, year in and year out. The farmer literally is a jack of all trades doing many different jobs and using many different machines in a single day.

A second factor is uncontrolled power. Today agricultural production is dependent upon the use of vast amounts of power, in units varying from a fractional horsepower motor on his drill press to hundreds of horsepower on his heavy equipment. The control of this wide range of power, under a wide range of situations, is dependent upon the knowledge, training, and skill of the farm operator. Too often the acquisition of such knowledge and skills is left to a haphazard manner.

A third factor as implied above is lack of training. We are all aware of the unwisdom and shortcomings of learning to operate high speed and high powered equipment in a haphazard manner. But the facts are that many of our agricultural workers still learn that way. They learn from others—bad habits as well as good. They learn by experience, and of course experience can be a good teacher, but "You'd better learn from the mistakes of other people—you won't live long enough to make them all yourself." Yes, experience is a good teacher only if you are lucky enough to live through acquiring it.

A fourth factor is lack of supervision. Here we get one of the widest deviations from the safety problems of other industries. We frequently hear large industries complain because small industries are not doing a good safety job, and as a result the smaller industries keep the total industrial accident rate higher than it would be otherwise. It appears many times that the smaller the unit within an industry the greater the problem of safety. Well, agriculture is made up of many relatively small units so that the job of motivation, training, and supervision is a different one from that found in most other industries. There are no safety supervisors in agriculture, and that is why it is so tremendously important to emphasize education in accomplishing accident prevention for rural people.

A fifth factor is the lack of safety promotion, a lack of safety consciousness. The history of safety in industry goes back more than 40 years, but it was not until 1944 that agriculture began to receive much attention. During that year a National Farm Safety Committee was set up in the National Safety Council, and attention began to be focused on the farm accident problem. So it is readily recognized that the history of organized safety work in industry goes back more than 40 years, but it is only in the last 15 years that farm safety has received similar attention.

What can be done to overcome the difficulties that exist in preventing accidents in agriculture? These difficulties are not insurmountable. When we think of safety we often think in terms of the three E's—Enforcement, Engineering, and Education.

When we apply these to agriculture we realize that because of the nature of the farm unit there is comparatively little opportunity for enforcement. There have been those who have felt that the best way to prevent farm accidents is to "pass a law." Many have been sincere in this belief, while others appear to be motivated largely by the possibility of personal profit through legislation. Guards for farm machinery can be provided, safe methods for handling livestock can be developed, and safety devices for the home can be offered, but their general use will not be secured through compulsion or legislation. As the farm safety program develops, some legislation may prove desirable, but ordinarily this should relate to such methods or devices as have been thoroughly tested and proved. Public opinion will then support legislation for both manufacturers and users who lag behind.

Engineering has played an important part in agriculture and will continue to play an increasingly important part, not only for the further development of agriculture but for the reduction of accidents among rural people. Equipment manufacturers are continually studying their products and bringing about improvements which reduce hazards in the operation of machines. The basic approach to improved engineering is research. It is obvious that safety research in agriculture must take on an accelerated pace. But to get the farmer to make use of the engineering safeguards and avail himself of better safety devices generally is largely an educational problem.

Thus we come to the third E, education, on which rests the major progress toward safety for the farm family. Safety education will require farm leaders—men and women who are willing to become rural safety engineers in a very real way without undergoing any type of formal safety education. Being alert to farm hazards, urging carefulness in place of carelessness, being an evangelist for safety every day, and

giving support to adequate safety organization—all these will ultimately produce safety consciousness on the part of farm people that will accomplish great results.

In this matter of effective safety education a well defined and successful pattern has been developed, namely the farm safety committee. Forty-two states are now definitely organized with farm safety committees composed of representatives of the major agricultural organizations and agencies within the state. These include representation from the State Grange, State Farm Bureau, Farmers Union, Agricultural Extension Service, College of Agriculture, State Department of Vocational Agriculture, farm equipment people, electric companies, rural women's organizations, young people's groups, and many others. These state farm safety committees have the responsibility of speaking for agriculture in safety matters. They devise plans and programs whereby farm people can do the safety job for themselves and at the same time play a part in the over-all safety movement of the country.

The state farm safety committee does several things such as:

1. Stimulate interest and activity on the part of the cooperating groups so that each of these groups will do the best safety educational job with its own people and through its own channels.

2. Plan and correlate the over-all farm safety program and unify it into one effective statewide program.

3. Represent a strong force to bring about increased or more adequate consideration for the safety needs of agriculture. The committee can take the lead in securing adequate paid leadership to head the safety movement within a state.

Under the leadership of the Farm Division of the National Safety Council, the 42 states now having state farm safety committees constitute a tremendous force for reduction of the toll that accidents take among rural people. The usual experience is that sooner or later after a state committee becomes activated, its members find need for a full time person to carry on the programs outlined by the committee. Fifteen states now employ state farm safety specialists who give their time to the leadership and coordination of safety efforts for agriculture. The time is at hand when many more states should have such a specialist.

A well planned program of farm safety includes many phases such as better statistical information, research and development of better techniques in doing farm jobs, and stimulating cooperation from many organizations and agencies. Bringing about an adequate degree of safety consciousness requires persistent educational and inspirational effort.

Therein lies the duty and the opportunity of the farm safety specialist. To provide a better understanding, a unifying influence, and an inspiring leadership is the great mission of such a job. Such leadership is bringing a steady decline in the unnecessary toll that accidents take in agriculture.

The next important unit in farm safety is the county farm safety committee. It is where farm people live and work that the job must be done if lives are to be saved and crippling injuries prevented. It matters not how good a program may be developed at the state or national levels, if it is not operative at the county level. The county committee under the guidance and leadership of a state specialist and the county extension agent can take over in putting these programs into operation.

What are the specific jobs for the immediate future? First of all we must know the situation better than it is now known. There is need for establishment of an accident reporting system that will compare somewhat favorably with the present crop reporting system now operative in agriculture. Families should keep a record of accidents on their farms. It may surprise them to discover that certain members of the family are experiencing more accidents than others, or that certain spots in the farmstead or certain pieces of equipment are involved in accidents more than others. It will be at those points or with such equipment or members of the family that safety education needs emphasizing.

The same sort of record should be kept for the community and for the county. In all probability it would be discovered that a certain point on the highway is involved in a lot of accidents or that farm driveways or field entrances are having more than their share of mishaps. Such knowledge would enable the county or community safety committee to develop an effective program to eliminate those hazards.

But our educational program cannot wait for the development of an accident reporting system, important as that is. There are certain fields of safety that need to be emphasized immediately. Each year, with the help of state farm safety specialists, two areas of safety education are selected for emphasis. For 1959 these include "Safety with the Tractor" and "Electrical Safety." Assistance is being given to the farm family, to the community, and the county to develop safety educational programs in 1959 that will emphasize the importance of the safe use of tractors and safe handling of electricity. Of course other areas of safety are included as well. Materials are available from the Farm Division of the National Safety Council to assist in the two special areas selected and also in other areas that require attention.

There are three major steps to be taken to accomplish this great educational program for safety and

agriculture. The first of these is to learn the hazards, and for this purpose farm safety check lists and hazard hunts are used both by young people and adults to discover dangers that lurk around the farm and in farm work.

The second point is a positive program to eliminate all those hazards that can be eliminated. Industry has discovered that it is worth any amount of expense and time to provide the safest possible conditions for its workers. Agriculture must come to the same realization.

The third point is to learn to live with those hazards that cannot be eliminated. Such knowledge in itself often practically eliminates the hazard. For example the corn picker, which is inherently a dangerous machine, can be operated safely if the operator will follow the instructions that come with the machine. In other words, the operator can learn to live safely with these hazards.

The coordinated effort of various groups in agriculture or those related thereto in attacking this problem cannot be over emphasized, but in the final analysis farming is a family proposition. It is important, therefore, that all members of the farm family be made safety conscious. This includes recognition of the danger spots around the farm, knowledge of what constitutes major hazards, an awareness of dangerous practices in handling machinery and livestock, plans for safeguarding children, consideration for risks in use of electricity, efficiency in fire prevention, up-to-date first aid knowledge, and a host of other items. But more than that the farm family must participate in the organized program for the community, the county, and the state. Farm safety organizations must promote programs for young people's groups, for women's organizations as well as for farmers themselves, and they must provide materials to assist in carrying out such programs. Awards and recognitions must be provided for those doing the best job.

There is no doubt that some farm people are alive today, some are not crippled today, because of what has already been done in farm safety. But it is equally true that many farm people are dead and many more are crippled because of what has not yet been done. Agriculture must tackle its own safety problem just as industry has done. Whose job is it? It's the job of everyone worthy of the title of leader.

The issues are so vital and the results so greatly to be desired that it is hoped that agricultural leaders everywhere and others who are related to agriculture and interested in its welfare will enlist in this important educational effort.

National Safety Council
425 North Michigan Avenue
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It takes *physical power* to run our industries, operate our farms, create products of commerce, to fashion weapons of defense and offense.

It takes *brain power* to create and control the forms and substance of our economic, political and social existence.

It takes the *power of ideas* to determine and establish our collective ideas and ideals, our dreams, visions and goals for the future.

These are the structures of power which we must build today to determine our existence tomorrow. Whether their foundations are shallow, shifting and fragile, or solid and deep, depends almost completely on the character of our research effort, both basic and applied.

Jesse E. Hobson
Vice President and Director of Research
United Fruit Company

Food for Thought

The Relationship of Nutrition to the Practice of Medicine

MARK L. MORRIS, B.S., D.V.M., ***and***
BETTE M. MORRIS, B.S., M.N.S., ***Topeka***

The recognition, diagnosis, management, and prophylaxis of nutritional imbalance as related to disease in a rural population is a problem of large magnitude and numerous facets. The rural physician, often a general practitioner, may well have difficulty in keeping abreast of the developments in a field as specialized as human medicine, as it derives from the basic sciences; i.e., biochemistry, physiology, and nutrition. Yet in a day when a large part of disease is chemical rather than bacterial in origin, it becomes increasingly important that the physician strive to keep informed on developments in the field of nutrition. Spies[1] expresses the belief that our chief medical adversary is "a disturbance of the inner balance of the constituents of our tissues, which are built from and maintained by necessary chemicals in the air we breathe, the water we drink, and the food we eat."

The nutrients essential for man appear to have been largely delineated, but their specific functions and interactions in body metabolism are areas in which there is comparatively little knowledge. There is much to be done in learning how quantitative changes in nutrient intake affect the biochemical balance of an organism and produce the clinical and pathological changes of human deficiency disease states.[2]

Voluminous data are available on the deficiency disease syndromes, and these have been described in detail in medical literature. Since the late 1930's, however, the physician in this country seldom sees frank deficiency disease states—such as pellagra, rickets, or beriberi—which were prominent until that time. Although the classical manifestations of deficiency disease syndromes are on the decrease, it should be remembered that "malnutrition is like an iceberg; its greatest mass and its greatest danger lie beneath the surface."[3]

Studies[4] made by the United States Department of Agriculture in the spring of 1955 have shown that the average amounts of food brought into household kitchens were sufficient in all regions of the United States to provide more than the recommended dietary allowances of the National Research Council's Food and Nutrition Board for calories and eight nutrients. Emphasis should be placed on the fact that the reference is made to the food purchased by the average family. Scrutinization of the calculated values for each household showed that many families had food supplies that did not meet the recommended allowances. The greatest inadequacies in family consumption were found for calcium and ascorbic acid, respectively 29 and 25 per cent. From 15 to 20 per cent of households had diets below recommended levels in vitamin A, thiamine, and riboflavin.

As compared with a large-scale study made in 1936 in which one-third of the families in this country had diets which were classed as "poor," the 1955 study judged by the same standard employed in 1936 would probably not have rated more than one-tenth of our population as having "poor" diets.[5] This is a gratifying improvement. However, the figures show that, except for protein and ascorbic acid, there is little difference in the adequacy of diets consumed by families in the top third of the income scale as compared with all families. This indicates that people in the upper income level either do not have sufficient nutritional knowledge or do not apply the knowledge they have.

The physician practicing in an area in which he may enjoy a close relationship with the families under his care has the advantage of being familiar with familial idiosyncracies, a valuable tool in the practice of medicine. The dietary background of the family should be a part of its medical record, as knowledge of the eating habits of family members coming under the physician's care may prove valuable in preventing and treating future complications due to nutritional imbalance.

There are many instances in which a physician aware of the habits of his patient may practice preventive medicine in foreseeing periods of physical stress. The example of the teenage daughter who decides to lose her chubbiness as she enters high school in order to compete with older girls has become so common that it is almost a cliché and presents an area in which the family doctor may advise toward sound weight control measures. Adolescent girls and older girls of child bearing age are prime nutritional problems in our society. The stresses of growth, endocrine development, and subsequent pregnancy on bodies inadequately nourished, jeopardize

the health of the girl and of children she will ultimately bear.

Although there has been a rapid decline since 1915 in deaths of babies under one year of age, the number of infants dying under one week of age has not shown such a gratifying rate of decline.[6] There are many causes of early infant death, many not yet elucidated, but careful studies in many countries have shown that one big factor concerned with premature delivery is the state of the mother's nutrition and health before pregnancy.[6] Early correction of subclinical nutritional complications will have an important bearing on successful termination of the pregnancy.

Many times the multiple problems presented by the patient coming to the physician are in part outgrowths of earlier dietary habits. For instance, the problem may be one of internal medicine, an accident involving shock, or a chronic constitutional disease complicated by obesity; but whatever the situation, the diet history of the patient has a bearing on diagnosis and medical management.

The busy physician, however, is faced with a complex situation in attempting to take a complete history on a patient. He is faced with a time-per-patient limitation, an economic factor, and often difficulty in obtaining trained personnel and adequate facilities to use in making necessary diagnostic tests, which aid in guiding and confirming his clinical evaluation of the patient. Methodical questioning of each individual patient to obtain a dietary history and subsequent appraisal and evaluation of this information is time consuming, tedious, and requires a sound basic knowledge of the composition and utilization of foods. The physician should remember that information obtained from the patient is qualitative in nature and commonly biased and colored by the patient in an attempt to please the physician.

A quantitative food record kept by the patient is the most accurate method available, without weighing the food intake, for obtaining a quantitative picture of the patient's dietary habits. In many cases, however, the food record would present unsurmountable difficulties for the physician. The next most accurate means would be taking a diet history. Maynard states, "Diet histories are very useful as a supplementary measure and as a means of obtaining a general picture of dietary habits, but they hardly suffice in themselves to provide a quantitative picture of food and nutrient intake. Much depends on the skill and experience of the interviewer and the time with each individual. Diet histories can be taken so rapidly and poorly as to result in generally erroneous rather than useful information."[9]

In obtaining further information about taking dietary histories, the physician may refer to suggested guides, such as those employed by Burke.[7] There are various food composition tables, such as the one prepared by the United States Department of Agriculture,[8] which can be employed in quantitatively calculating the diet of an individual patient.

In the large majority of individuals it is not feasible, although often desirable, to take quantitative dietary records. It becomes necessary to rely upon qualitative data based on the physician's trained questioning of the patient to obtain a picture of his probable nutrient intake. The development of a proficiency in this area of practice requires some basic knowledge of the chemical composition and biological value of foods and their role in both normal and pathological metabolism.

Maynard[9] further states that scoring the diet for adequacy in terms of specific food groups—such as two servings daily of fruits and vegetables high in carotene, etc.—is a method finding increasing use. A system of evaluating the diet in terms of some commonly used standard, such as the Basic Seven[10] or its recent modification, the Basic Four,[11] should give helpful information with many patients. It should be remembered that many food combinations may produce an adequate diet, and this method is fraught with possible error in evaluating diets not patterned after the system of scoring. If the limitations involved in this method are considered in evaluating the information obtained, the physician may find this to be a useful method.

The compilation of the clinical history of the patient, including the dietary history, and the weighing of this information with clinical and laboratory findings in terms of that individual's condition constitutes the "art" of the practice of medicine.

Frank deficiency disease syndromes are no longer prevalent, and the majority of nutritional deficiency states are sub-clinical in nature or are complications of other diseases. Moore[12] has indicated that it is in the zone of potential deficiency disease "where much thinking has been stimulated in the minds of surgeons who now respect the sub-nutritional state of patients as regards surgical post-operative prognosis and endeavor to uncover bad risks. . . ."

Lund[13] indicates that there are three important concepts for the surgeon: "First, a small percentage of patients come to him who, in addition to, or because of their surgical conditions, or for both reasons, are badly depleted in protein, various vitamins, and minerals. Second, a great many other patients come to him who are depleted in the same substances to a lesser degree, but nevertheless, a degree that may lead to an adverse result of operation. Third, an immediate result of injury, which includes

such diverse conditions as acute illness, anesthesia, poisoning, and surgical operations, is a further depletion of these substances that is quantitatively related to the severity of the injury.

"These concepts indicate why a knowledge of certain aspects of nutrition may be considered to be even more important to the surgeon than to the internist, because the internist seldom has to carry out a form of treatment that contributes additional injury to the already depleted patient."

Life expectancy in this nation has markedly increased; chronic diseases, so common in our resultant aging population, are receiving greater emphasis as they have become prime national health problems. The field of geriatric medicine is faced with a tremendous challenge, one important facet being the nutritional care of our senior citizens. Although the nutritional aspects of chronic disease are inadequately defined, nutritional research is continually turning up answers to the perplexing questions of the etiology of chronic constitutional diseases.[14]

In concluding this discussion of a few aspects of nutrition as related to the practice of medicine, the scholarly comment of McCollum[15] in his book, *A History of Nutrition*, seems most apropos. McCollum comments on increasing integration of the fields of physiology, botany, zoology, bacteriology, embryology, genetics, immunology, and virology as it has become clear that "all these divisions of knowledge embraced in separate courses of study are chemical in nature, and each tends progressively to become divisions of biochemistry." With increasing research and elucidation of the role of nutrients in both normal and pathological metabolism, the application of the principles of nutrition to the practice of medicine and surgery will increase in importance.

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We cannot live on the memory of a heritage forever. A heritage is like a well-constructed building. Even the most qualified architects, the most solid foundation, and the best building material will not guarantee that a structure lasts for eternity. . . . We need to tell ourselves and the next generation about this house called heritage and how much of our interest, thinking, time and money it will take to preserve the structure.

—*Walter Wiesman*

Hearing Conservation

An Outline of the Plan for School Children in Kansas

R. L. SCHIEFELBUSCH, Ph.D., *Lawrence*

Recent testimony before the Committee on the Conservation of Hearing and Speech of the Kansas Medical Society indicates that there are a large number of children in communities over the state who have undetected and untreated hearing problems. This testimony should come as no surprise to professional people who have made an effort to understand the nature of hearing problems in childhood. They realize that the family physician can do little to correct a hearing loss until the child comes to his office for treatment. Few physicians have the time or the equipment to carry out large-scale hearing surveys to detect all children with hearing problems in a given community. Therefore, unless arrangements are made for a mass program of hearing-testing, many children with hearing losses will go undetected.

Experience in several states has indicated that state medical societies have played important roles in planning and approving statewide programs of hearing conservation. For this reason the Committee on the Conservation of Hearing and Speech has undertaken a series of planning sessions devoted to this objective. The members feel that the deliberations carried on by this committee should provide the initial impetus for a better set of procedures for Kansas.

As a result of their meetings, members of the committees have evolved three principal assumptions to guide them in further planning: first, a great deal of information should be distributed to medical practitioners and lay persons alike to acquaint them with the best methods of care for children with hearing problems; second, uniformity of procedures for testing hearing and making referrals to medical practitioners should be established; and third, state agencies, as well as local agencies, should work together to bring about a better solution to the existing problems.

The Need for Hearing Conservation

Most careful surveys place the percentage of children with hearing impairments at approximately five per cent. A large percentage of these children are vulnerable to educational and social maladjustments. Others will develop chronic impairments unless they receive proper treatment. It is generally accepted that at least 50 per cent of all hearing problems in children could be prevented if adequate measures were taken. Perhaps the greatest need of all is for unrelenting effort to find and deal with all cases in their beginning stages.

A study by Fabe-Hansen in Denmark serves to emphasize the importance of hearing conservation. In a survey of 2,500 school children, 231 were found to have a variety of outer and middle ear diseases. Treatment resulted in complete cures for 73.3 per cent, substantial improvement for 14.7 per cent, and no help for only 10 per cent. The committee feels that such information emphasizes the dramatic importance of hearing conservation work. The following recommendations of the committee are presented to contribute toward an eventual program of a more complete nature.

The Process of Hearing Conservation

From the medical point of view, a state hearing conservation program can be broken down into four essentially inter-related phases, namely: detection, referral, medical treatment, and follow-up. For the process of *detection*, the committee recommends the use of the pure tone audiometer as the standard equipment for testing hearing. Group pure tone equipment may be used as an economical means for securing reasonably efficient, rapid screening of hearing in children at the second grade level and above. However, in most school systems an individual pure tone audiometer will serve adequately for screening purposes. The standard technique is the 15- or 20-decibel sweep test. The common practice of using a voice

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Dr. Schiefelbusch is director of the Bureau of Child Research at the University of Kansas. He has attended meetings of the Committee on Conservation of Hearing and Speech of the Kansas Medical Society and has prepared this article at the request of the committee. Members of the committee are: Dr. Victor R. Moorman, Hutchinson, chairman; Dr. C. W. Armstrong, Salina; Dr. J. A. Budetti, Wichita; Dr. H. R. Draemel, Salina; Dr. E. L. Gann, Emporia; Dr. C. L. Gray, Wichita; Dr. W. P. McKnight, Wichita; Dr. E. E. Miller, Pittsburg; Dr. Ruth Montgomery-Short, Halstead; Dr. W. D. Pitman, Pratt; Dr. Ralph R. Preston, Topeka; Dr. G. O. Proud, Kansas City; Dr. R. E. Riederer, Olathe; Dr. M. J. Ryan, Kansas City.

whisper test or a watch-tick test is not recommended by the committee. For children below the second grade, the committee does not recommend the use of multiple-hearing devices, but instead would suggest the use of an individual audiometric screening examination.

There are a number of audiometers that will cost in the vicinity of $200 to $400 dollars.* Dr. G. O. Proud reports that physicians in general practice are increasingly utilizing one instrument which costs around $135 as a means for testing hearing.

Whereas the audiometer is a highly definitive, scientific device for measuring hearing, it often is no better than the care that is given to it or the operator who uses it in determining hearing loss. Equipment must be calibrated frequently and should have the best of care to insure that it will be in proper working condition. Testimony indicates that hearing tests are today being administered by school nurses, speech therapists, teachers, volunteer workers, and many others throughout the state. The committee feels that there is a great need to set standards for competency among those giving hearing tests to children. School systems that are conducting tests should exert extreme care to insure that adequate personnel are obtained and that all personnel have undergone training prior to the initiation of a hearing-testing program.

The committee recommends the establishment of a two-weeks extension course to be given at several points throughout the state so that various persons giving tests to children may have an opportunity to develop desirable proficiencies for this work. The chairman of the committee has appointed Dr. G. O. Proud to serve as chairman of a sub-committee to work out the details of this two-week course. Others on the committee are Dr. C. P. Goetzinger, Dr. June Miller, and Mr. James McLean.

The committee also recommends that children who show a hearing loss on the screening test be given a second test, an individual audiometric examination, before a *referral* of the child to a physician. Those children who exhibit a hearing loss of 20 decibels or more at any two frequencies in a given ear, together with those who exhibit a loss of more than 30 decibels at any one frequency in a given ear, should be referred for medical attention. The child should be referred to the physician by the parents rather than by direct action of the school administration or by those conducting the hearing tests. This referral should be made only after the individual audiometric test has confirmed the results of earlier findings. The actual results of these tests should be sent to the doctor so that the information is available to him at the time he gives the examination. The school should add pertinent data to the audiometric profile whenever such data are available.

Before expecting the parents to take a child to the family physician, the school should send a note to the parents stating that a possible hearing defect was noted during the school survey and that this is an indication of the necessity for an immediate examination by a competent physician. A returned card to be signed by the parents might acknowledge receipt of the message, naming the doctor to whom the child will be taken. Schools shall assume responsibility for following up the case to determine whether or not parents have made arrangements for *medical treatment*. The physician, after securing permission from the parents for releasing such information, should advise the school of the results of his examination. Such reports should indicate the prognosis for correction of the hearing problem by medical treatment. It is further recommended, generally, that closer working-agreement be established between the school and the medical profession and that this working relationship be carried out in whatever manner seems most appropriate to the medical profession and local agencies.

The committee assumes that a plan for *follow-up* care is the responsibility of both medical and educational workers. The child is likely to need such provisions as additional hearing-testing in a year or two. If a loss is indicated at that time, he should again be examined by the physician. Other follow-up measures may involve hearing aid fittings, speech reading, speech correction, and/or special class room instruction.

The plans of the Committee on Conservation of Hearing and Speech are projected to include discussions of a public information series about hearing conservation. Members expect also to formulate recommendations for standardized referral and report forms to be used by members of the hearing team and to hold further discussions regarding training of hearing technicians and the establishment of hearing conservation programs.

* Physicians may secure information on different brands now available by writing the committee.

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The Teeth

Measures Preventing Caries and Malocclusion Lead to Good Dental Health

WILLARD R. BELLINGER, D.D.S., M.P.H., *Topeka*

Those people seeking an early dental appointment who become upset because they may have difficulty in competing with some 2,000 other Kansans each dentist must serve, should hesitate for a moment and count their blessings. For instance, in British Solomon Islands the dentist-patient ratio is one to 99,000; in Fiji the ratio is one dentist to 106,000; in New Hebrides the ratio is one dentist to 250,000.

As a matter of fact, the people in the United States are most fortunate in having available to them the finest dental care in the world—and yet with the best dental care available in the world, there remain many dental health problems.

Almost everyone here in the United States, as elsewhere, is afflicted in some degree by one or more of the numerous chronic diseases, and dental caries (decay) is one of those chronic diseases. Of the many diseases to which man becomes subjected, except perhaps for the common cold, dental caries is the most universal physical defect and the most prevalent of all childhood afflictions.

For centuries man was resigned to expect excessive dental caries and the early loss of permanent teeth. However, as the result of scientific measures advanced for the prevention and control of dental caries, today's children may anticipate life-long sound dental health—but only if, through individual and community action, advantage is taken of the advances which have been made in dental science and dental treatment.

Most dental diseases or conditions may be termed truly chronic. These chronic diseases cover the entire life span of the individual from childhood to old age. The two chronic diseases which give the dental profession most concern are dental caries and periodontal disease.

The problem of dental caries is tremendous. Some of the contributing factors which magnify the problem are as follows: In contrast to many childhood diseases, it is not possible to vaccinate against dental disease which afflicts more than 95 per cent of children of school age; dental decay requires constant vigilance as one new cavity develops annually in the average child's mouth; dental decay is progressive, causing tooth mortality unless the condition is treated by a dentist; tooth structure, once destroyed, does not repair itself; the population is increasing yearly which means a greater patient load for the already busy practicing dentist.

Fluoridation of water deficient in the element and proper professional and home care can greatly reduce incidence of tooth decay and malocclusion. A program of examination and education is now being carried on in schools in Kansas by the Division of Dental Hygiene of the Kansas State Board of Health.

It has been stated authoritatively that in order to maintain the present patient-population ratio, it would require two new dental schools each year for the next 14 years or the equivalent expansion of existing facilities. Such expansion seems unlikely. An American Dental Association official has made the following statement, "If all the 97,500 dentists in the United States were to work 24 hours a day, and if all the people in the United States were to have all the dental treatment performed that should be performed, it would require 400 years to catch up with just what needs to be done today."

There are many citizens, because of their economic status, who cannot afford the cost of adequate dental care. If it were possible to eliminate the economic block, dental care still would not be available to all because there simply would not be enough dentists and dental hygienists to care for the dental needs of all the people. The solution lies in reducing the problem.

The above briefing should demonstrate that the problem of dental decay is staggering, and to meet the problem completely is impossible under existing circumstances. As dark as the situation may appear, it is not without a glimmer of hope because now with fluoridation of public water supplies and with other dental caries preventive and control meas-

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Dr. Bellinger is director of the Division of Dental Hygiene, Kansas State Board of Health, Topeka.

ures at hand, the outlook for the future of dental health is far more encouraging.

With a resolute determination to meet the problem of dental caries, especially among children, the director and staff of the Division of Dental Hygiene, Kansas State Board of Health, with the complete support and cooperation of the officers and members of the Kansas State Dental Association, have developed and initiated preventive and control measures for meeting the staggering problem.

It is quite probable that many of the dental diseases and conditions so prevalent among adults would not have developed had dental or oral pathology been prevented or eliminated during childhood Therefore, because dental health programs for children hold promise of greatest reward, much of the Division of Dental Hygiene's effort is directed to the younger citizens in Kansas.

For the prevention and control of dental decay in children's teeth, four specific recommendations are emphasized. These recommendations are:

1. Early and frequent dental care, beginning at the age of two and a half years.

2. Proper toothbrushing procedure, namely, method of brushing and the most effective time to brush the teeth, immediately after eating.

3. Proper diet, which includes cutting down on the consumption of sweets and the elimination of between-meal sweet snacks. A diet containing the essential body building elements is adequate for the development of the teeth.

4. Fluoride prophylaxis which includes topically applied sodium fluoride to the surfaces of children's teeth; and fluoridation for fluoride-deficient public water supplies which has proved to be a completely safe, effective, and practical measure for reducing the rate of dental caries in children's teeth up to 60 per cent.

For improving and protecting the dental health of the children of Kansas, the division's two most effective programs and the two programs demanding the greatest amount of planning and effort are: (1) the school dental health program and (2) the fluoridation of public water supplies. These two division programs will be discussed briefly.

The school dental health program prescribes a procedure whereby early and regular visits to the dentist result in four specific advantages: (1) dental defects may be discovered early when they may be corrected with the least amount of discomfort to the child; (2) early symptoms of oral disease may be detected and corrected; (3) irregularities of tooth position may be observed early and treatment instituted; (4) the cost of dental care is reduced.

In approaching maximum dental health for children through the school dental health program, the following steps are recommended: (1) provide classroom instruction in dental health practices, such as personal care, professional care, and proper diet; (2) provide for at least one annual dental inspection for each pupil; (3) notify parents of the results of the inspection; (4) through follow-up methods by teachers, nurses, and dental hygienists, pupils are motivated to seek correction of dental defects; (5) encourage responsible bodies to make dental care available to pupils whose parents or guardians are financially unable to seek private care; (6) excuse children from school for dental appointments; (7) maintain accumulative data for measuring the progress of the program in meeting the dental needs of school children; (8) provide for lay education and participation.

During the past nine years, the school dental health program was operating in each of the 105 counties in Kansas. A valuable feature of the school dental health program is that the program reaches and assists the great majority of families with children in each of the counties in the state.

Excellent summary reports received from many of the schools throughout the state prove that the principles adopted for conducting the school dental health programs are sound and, if properly executed as recommended, are effective.

The fluoride adjustment of fluoride-deficient public water supplies offers the greatest hope in meeting the ever-increasing problem of dental caries. During the past several decades two phases of study relating to fluorides preceded the present era of controlled fluoridation. First was the study of toxic manifestations, namely, unesthetic dental fluorosis, due to the ingestion of water containing an excessive concentration of fluoride during the period of tooth development. Second was the period when studies revealed that the ingestion of water containing an optimal amount of naturally occurring fluoride during tooth development resulted in teeth having a high resistance to dental caries. Third is the present era in which it has become evident that by adding a small amount of fluoride to a communal water supply which is deficient in this element, dental caries is significantly reduced with no ill effects to consumers.

Fluoridation is the process of adding a tiny amount of fluoride to a public water supply that does not have enough of this decay preventive substance of nature. Fluoride may be found occurring naturally in varying degress in all public drinking water and many foods. Research repeatedly has verified the fact that the rate of dental caries may be reduced up to 60 per cent when water containing an adequate

amount of fluoride (1.0 ppm) is ingested during the period of tooth development, namely the first eight to ten years of life. Leading American authorities in human nutrition, chemistry, pharmacy, dentistry, and medicine virtually are in unanimous agreement that fluoridation is a safe, effective, and practical public health measure for reducing the rate of dental caries in children's teeth.

Fluoridation, although seemingly slow in being accepted, actually is progressing rapidly for a public health measure. Today more than 1,600 communities in the United States have made the fluoride adjustment in the public water supply for reducing the rate of dental caries in children's teeth. Today approximately 33,000,000 people in the United States —one of every four served by central water systems —now have access to water containing an optimum of fluoride. In 85 per cent of 1,600 United States cities with controlled fluoridation, the fluoride adjustment came about through favorable action by the city governing body in approving and providing for the dental public health measure.

Kansas is keeping abreast in the fluoridation program. In Kansas 30 cities with a total population of approximately 325,000 have made the fluoride adjustment in the public water supply. In addition, there are 72 cities in Kansas with a total population of approximately 125,000 where fluoride occurs naturally in the water supplies in an amount which is adequate to reduce materially the rate of dental caries. In these 72 cities no additional fluoride is required.

Fluoridation progress may seem slow and may be temporarily delayed, but it cannot be stopped. Without doubt fluoridation will go down in history among the great public health measures.

Public appreciation of the rewards of good dental health does not come about through accident—rather, it is the result of much concentrated educational effort. Yet, after many years of continuous educational effort, some parents still do not appreciate the need for adequate dental care for the deciduous teeth—teeth which are equally as valuable to the young child as the permanent teeth are to the adult. Decay and infection of deciduous teeth are equally as detrimental to health as decay and infection of permanent teeth. Neglect of cavities in deciduous teeth often results in toothaches, infection, and premature loss of teeth.

Should advance decay result in premature loss of the posterior deciduous teeth, a shifting of the remaining teeth leaves insufficient space for the permanent teeth to erupt in proper alignment. Improper alignment of permanent teeth, termed malocclusion, may produce various harmful effects. It may (1) interfere with proper chewing of food; (2) cause speech defects; (3) lead to tooth decay and contribute to periodontal disease in later life; (4) cause facial deformities; (5) lead to social and emotional disturbances.

On the basis of several surveys, it has been estimated that approximately 30 per cent of children of any given age group need some form of orthodontic supervision. Malocclusion due to inherited causes cannot be prevented. However, it has been estimated that 80 per cent of malocclusion may be prevented through recommended preventive measures which include preventing the premature loss of teeth, through early and regular dental care, placing of space maintainers when indicated, and by correcting harmful mouth habits which the dentist can recognize. Many parents are paying for orthodontic services which possibly could have been prevented through adequate dental care early in the child's life.

If the dental caries preventive and control measures presently available are to be made effective, the membership of community groups interested in the health of children must not be content with passive interest and endorsement. Rather, it is imperative that these local organizations accept the challenge of securing the benefits of these preventive and control measures for improving the dental health of the children in the community.

Much of the dental caries formerly expected to occur in children's teeth is being prevented in many communities. Therefore, in order to attain the lifelong dental health which is available through the advances which have been made in science and dental treatment, knowledge must be put into action.

Division of Dental Hygiene
Kansas State Board of Health
State Office Building
Topeka, Kansas

CHANGES OF ADDRESS

Members of the Kansas Medical Society will receive the JOURNAL and correspondence from the Executive Office promptly only if correct addresses are on file. Report changes to Kansas Medical Society, 315 West Fourth Street, Topeka, Kansas.

Tuberculosis

Case-Finding, Diagnostic Facilities, and Treatment in Kansas

RALPH I. CANUTESON, M.D., *Lawrence, and*
JOHN L. MORGAN, M.D., *Emporia*

The Kansas Medical Society Committee on Control of Tuberculosis in 1958 formulated a policy to serve as a guide in the case-finding program for tuberculosis in Kansas.

The object of a tuberculosis control program is to find infected patients early in the course of their disease, to direct them to competent diagnostic and treatment facilities, and to aid in their eventual return to their normal place in society. Discovering a patient with suspected tuberculosis is important, but this is of no more than statistical interest unless the patient is directed to skilled diagnostic and treatment facilities with an accompanying investigation of his contacts.

As it is everywhere, the tuberculosis picture in Kansas is changing. No longer is tuberculosis a disease of the young. A study of morbidity and mortality rates shows a shifting involvement from the age group under 30 to those over 40 years of age. Increasing industrialization in Kansas, as elsewhere, with a migration of population to urban centers, has contributed toward an easier dissemination of the disease.

There has recently been widespread attention to the possible hazards of radiation, as witnessed by the numerous articles on this subject in current medical journals. It has been urged that every controllable source of ionizing radiation be limited to a minimum compatible with the gain from its use. The committee was guided by many opinions in the literature in this regard, and the following recommendations were made applicable to case-finding surveys and the follow-up of suspicious lesions.

1. Mobile x-ray units should be used in the area with the highest prevalence of tuberculosis as shown by data from previous surveys. These areas include about one-fifth of the counties of Kansas, generally in the eastern third of the state, and these involve the bulk of the total population. Limiting the use of our existing mobile x-ray equipment to these critical areas will allow survey of a higher percentage of eligible suspects.

2. The age of eligibility for mobile unit x-ray should be raised from 14 to 20 years of age.

3. For retake films of suspicious lesions, the first recourse should be a comparison with previous films. If no previous films are available, a repeat x-ray should be done locally with a 14″ x 17″ film, rather than by the mobile unit.

4. The tuberculin test should be utilized in identifying those who need chest x-rays (for the most part 14″ x 17″ films taken locally) in the following groups:

a. Areas of low prevalence of tuberculosis.
b. Groups below age 20.
c. Institutional groups, including colleges.
d. Penal institutions.
e. Mental hospitals.
f. Training schools.
g. Food handlers.
h. Baby sitters.
i. Teachers.
j. Cosmetologists.
k. Barbers.
l. Medical personnel.

An essential sequel to the case-finding program consists in furnishing adequate diagnostic and treatment facilities in all areas of the state. A recent survey of tuberculosis facilities in Kansas revealed that there are sufficient tuberculosis hospital beds and there are increasing numbers of qualified chest physicians. There is, however, a delay or perhaps no action at all on the patient's part in reporting to his family physician or other diagnostic resource when he has been informed that he has a suspicious lesion on his chest x-ray. The committee has recommended the increased use of public health nurses to act as a liaison between a suspected or known tuberculosis patient and his physician.

The committee has recommended that regional tuberculosis clinics be established in areas where there is a need, that these clinics be organized and

Members of the Committee on Control of Tuberculosis are: J. L. Morgan, Emporia, chairman; A. L. Ashmore, Wichita; A. Baude, Topeka; R. M. Brooker, Topeka; J. A. Butin, Chanute; R. I. Canuteson, Lawrence; A. M. Cherner, Hays; R. F. Conard, Emporia; J. C. Dowell, Lawrence; M. J. FitzPatrick, Kansas City; J. K. Fulton, Wichita; R. A. Lawson, Chanute; J. M. Mott, Topeka; G. W. Nice, Topeka; R. M. Owensby, Mankato; Charles Pokorny, Halstead; J. W. Spearing, Columbus; C. F. Taylor, Norton, and P. H. Wedin, Wichita.

staffed insofar as possible by local agencies (county medical society, the health department, local tuberculosis associations), and that financial support of the clinics be shared by the area served and the Kansas State Board of Health, the latter agency to aid in the establishment and maintenance of the clinics.

The suggestions detailed above have already been implemented in part. The Kansas State Board of Health is now operating mobile x-ray units on a revised schedule with more time spent in counties with a high tuberculosis prevalence as shown by previous surveys. Substitution of the tuberculin test as a screening procedure in the groups listed above is now in the planning stage. The first regional diagnostic clinic following the above recommendations has been established at Stormont-Vail Hospital in Topeka. This Northeast Kansas Chest Clinic, so-called, serves the counties adjoining Shawnee and was founded following the advice of a local committee representing the Shawnee County Medical Society, the Shawnee County Health Department, and the Kansas Tuberculosis and Health Association following a study to determine what facilities could be made available to the out-patients who had been going to Hillcrest, this institution having been closed in July, 1958.

The Committee on Control of Tuberculosis is now considering needs for facilities for other areas in Kansas. Results to date speak well for the constructive cooperation of local physicians with the various health agencies involved in the control of tuberculosis. As a guide to the practicing physicians in the state, the committee is now preparing a series of five articles on different phases of the tuberculosis problem in Kansas for publication in the JOURNAL OF THE KANSAS MEDICAL SOCIETY.

Immunization Recommendations

Immunization schedules for adults were outlined recently in an article published in the *Journal of the American Medical Association.*

Answering a query from a Michigan physician, one of the 900 physician consultants to the *Journal* said the "optimum intervals" for adult immunization, assuming that an adequate initial immunization series has been given, are as follows:

Smallpox. Vaccination is needed every three years.

Diphtheria. Immunization is not recommended for adults except in cases where the person shows no immunity after exposure to special risks.

Tetanus. A booster dose should be given at the time of each injury where the danger of tetanus exists, with reinjection in the absence of an injury at intervals of no longer than five years.

Typhoid. Reinforcing injections are necessary every three years.

Influenza. Injections should be given every year to "risk cases," such as old or chronically ill persons.

Poliomyelitis. Not enough time has elapsed yet to learn about the duration of protection conferred by the Salk vaccine, but a fourth dose, given not earlier than one year after the third dose, could be administered to individuals exposed to special risks.

The consultant noted that these are general guiding schedules which vary according to circumstances. For instance, for persons traveling to areas where smallpox is prevalent, revaccination at intervals as short as six months may be desirable. The same is true for persons living in areas where typhoid is common. They should get a booster dose every year.

PRESIDENT'S PAGE

Dear Doctor:

One hundred years ago organized medicine was born in Kansas. Today the Kansas Medical Society holds the oldest charter of any Kansas corporation.

Ten years ago the Kansas Legislature appropriated four million dollars to expand the facilities of the University Medical School so that more doctors would be available for the smaller communities of Kansas. More than 60 hospitals were built in these smaller communities and the result has been the much broader rural medical care coverage that we know today.

The National Rural Health Conference of the A.M.A. was organized as a result of the Kansas development of medical services to rural areas. This year their annual meeting is being held in Wichita as a part of the Centennial of the Kansas Medical Society.

This means that for three days, March 5, 6, and 7, our Society is host to the nation. Every state is to be represented. It behooves the doctors of Kansas to welcome this fine group to our state.

Please be sure that your own local society has at least two or three doctors in attendance, and make every effort to be there yourself. I hope to see you in Wichita.

Most cordially,

Thomas P. Butcher, M.D.

EDITORIAL COMMENT

Horizons in Rural Health

By F. S. Crockett, M.D., Chairman of the A.M.A. Council on Rural Health

It is a great privilege for the members of the Council on Rural Health to be invited by the Kansas Medical Society, during its centennial year, to hold our Fourteenth Annual Conference at Wichita, March 5-6-7, 1959.

One hundred years of service dedicated to giving an ever better measure of health protection should be not only a source of great pride to Kansas physicians but a constant realization of comfort and safety to all citizens of this great state.

It is with justifiable pride that we devote our annual conference, dedicated as it is, to constantly improving health needs in the communities in which we live.

The Council on Rural Health is the official representative of the 160,000 doctors who constitute the American Medical Association, including the 2,000 who form the Kansas Medical Society. The council on the national level and the Committee on Rural Health on the state level are the channels through which we doctors work.

But rural health it not solely a doctor responsibility. The council was appointed by the Board of Directors of the American Medical Association in response to an invitation by farm people. The Board of Directors of the American Farm Bureau Federation invited us to join with them in a study of the health situation in 1945 and to seek a possible solution. This was the original partnership formed between farm people and the medical profession. It has never ceased to be an organization of lay and professional people. It has grown in many ways.

To the original two participants there have been added, as advisory members, the National Grange, the Extension Services of our land grant colleges, the Farm Foundation of Chicago, the American Agricultural Editors' Association, and the American Veterinary Medical Asociation. This gives us a complete cross-section of the leadership of producers, educators, and the medical profession clear across the board. It is with the help of these interested people that much has been accomplished these past 14 years.

The philosophy of the council has been of the typical American variety. We have sought to help people solve their own problems. We have never gone in and done the job for them.

The purpose of these annual sessions is to highlight the work being done in the states at a community level. It is only where people live and work that we can make available the best of medical care. Our ideal is a first-class doctor wherever one is needed. The graduates of today's medical colleges have ample education and training when they finish their hospital experience. They are prepared to practice in the biggest cities, but they may prefer the village for a home. Today's doctors are well prepared, and patients may go to them with confidence. A physician in a small town will likely remain there if the residents of the area let him feel their confidence by using his services.

At the Wichita conference there will be much of interest for everyone, both laymen and physicians. The program will include such subjects as hospitalization and health insurance plans; mental health in relation to the broad social problem; the place of nutrition in health maintenance; newer ideas in the care of long-time illness; care for the aged and the handicapped; a program for dental care as an important part in health; success stories of communities that have solved some health problems and can tell us what they have done to get and hold a doctor.

These subjects will be presented by experts in their respective fields. Audience participation is highly desired. An experienced discussion leader will handle questions from the floor and assure everyone an opportunity to be heard.

We look forward to an outstanding meeting at Wichita, March 5-6-7. We are grateful to the officers and personnel of the Kansas Medical Society for their enthusiastic welcome and assistance in developing the program.

Health Information, Pocket-Style

Last week a young farmer took a folded card from his wallet and made an entry. "Third polio shot," he wrote. Then he added the date.

The farmer looked at the card in his hand. Titled "Personal Health Information," it contained written notations that served as an emergency health record for him and for his physician.

It listed diseases he has had. It gave his blood type, the number of his health insurance policy, his allergies. It even made note of the fact he had had his appendix out in 1955.

At the bottom of the card was a round seal and the words "Prepared by the American Medical Association."

The Personal Health Information card is a project originated for farm people but now being adopted by their city neighbors. It started as an

idea of the American Medical Association's Council on Rural Health—an idea based on the need for a permanent record of health information that would be readily accessible at all times.

In this age of mobility, a rural resident never knows where his travels will take him—to market with products, to the county seat to check on legal matters, to a metropolitan center for a meeting. Should an illness occur, he needs basic data to help his doctor give him fast, efficient care.

"The health information card is not intended to replace official medical records," points out Dr. F. S. Crockett, Lafayette, Indiana, chairman of the Council on Rural Health. "It is merely a collection of personal information which most of us are supposed to remember, but never do. The solution is to write it down."

The popularity of the card was immediate. The small supply originally printed by the council was soon exhausted. The project grew in size, and the A.M.A's Board of Trustees took it on as an Association-wide activity instead of limiting it to farm people.

A million cards were distributed in less than a year. A second million was ordered.

Biggest impetus given to the Personal Health Information card came in October, 1958, when *Reader's Digest* told about its availability. The article was careful to explain that health information cards should be obtained from physicians who, in turn, could get them from their local or state medical societies. In spite of these instructions, the American Medical Association was swamped with requests for the pocket card.

Primary distribution of Personal Health Information cards will continue to be through practicing physicians. The American Medical Association believes that the physician, as the health advisor, should be the one to give the card to patients—and help to fill it out.

Supplies of cards can be obtained from the Kansas Medical Society or by writing direct to Communications Division, American Medical Association, 535 North Dearborn, Chicago 10, Illinois.

Tetanus Immunization

The publication of the rural health issue affords another opportunity to re-emphasize the importance of tetanus immunization.

The efficacy of tetanus toxoid immunization was proved beyond all doubt during World War II. Still we continue to see an appreciable number of tetanus cases throughout the state; for instance, in one four-year period, 24 cases were reported, and ten patients died.

Farmers and rural workers are a vulnerable group since they constantly deal with complicated mechanical equipment, are frequently weary, and accidents are a natural result. The editors of the JOURNAL urge physicians and farmers alike to join in eliminating this unnecessary hazard.

More People, More Problems

The number of people on earth increased in 1958 by 47,000,000, according to the Population Reference Bureau, a growth exceeding the total population of all the New England states, plus those of New York, New Jersey, Pennsylvania, and Maryland. Furthermore, says the bureau, if the present birth rate persists, by 1980 the world population will be more than four billion persons, an overwhelming percentage of whom will be living in what are now known in the West as underdeveloped countries.

The nutritional problem in this prospect is obvious. Less apparent, the Health News Institute points out, is the health problem. Millions of people will be huddled together under conditions which will be open invitations to epidemics and medical disaster.

In long-range anticipation of this population growth, a score or more of American pharmaceutical houses have in the past year announced plans to expand their overseas operations on five continents, building plants, hiring native personnel, with only American know-how in local charge.

And perhaps this is the really constructive kind of statesmanship. In the long run, a drug which destroys malaria in India or kills yaws in Africa may prove to be a more decisive weapon in winning the Cold War than any intercontinental ballistic missile.

More than one million dollars in grants and fellowships for nursing research was awarded during the past year by the Public Health Service, U. S. Department of Health, Education, and Welfare. Awards include 15 nursing research projects and 12 fellowships to help students prepare for research careers.

Funds available for these projects since the program began in 1955 now total $2,660,000. Awards have been made for a total of 57 research projects and scholarships to 60 persons.

Week-end crashes accounted for 15,730 killed and 766,090 hurt during 1955.

He insisted on his right-of-way—
They're giving him his "rites" today!

BLUE SHIELD

Blue Cross-Blue Shield For Rural Residents

The theme of rural health in this issue of the JOURNAL naturally raises the question, "What is being done by Blue Cross and Blue Shield to make prepayment more readily available to people in rural areas?"

Blue Cross and Blue Shield have two major approaches to enrolling rural families—

1. Through their Farm Bureau Association or other farm associations, and
2. Through the non-group enrollment program.

A major problem to be solved in making prepayment available to rural families is the difficulty of grouping these people so that the plan may obtain a reasonable cross section of health and at the same time be able to offer attractive rates to these rural families.

A major part of this problem was solved in 1954 when Kansas Farm Bureau and Blue Cross-Blue Shield established a working agreement whereby association group enrollment would be made available to members of the Farm Bureau. Through that agreement each County Farm Bureau Association was considered as a group with a certain quota to maintain if its members were to be enrolled.

Farm Bureau leaders throughout the state participated in announcing this enrollment and in making the benefits of the program known to Farm Bureau families. As a result of continuous efforts in this activity, 94 Farm Bureau county units have been enrolled with a total enrollment of 62,300 members.

This cooperation between Blue Cross-Blue Shield and the Farm Bureau made it possible to offer a group plan to Farm Bureau members at lower rates than are charged to non-group members and in the initial enrollment accept people in all conditions of health. In other words, because of the grouping of Farm Bureau people it was possible to eliminate the use of the Health Statement Application wherein certain pre-existing conditions have to be excluded from benefits.

It may be said that "through the Farm Bureau and other farm associations, every farm family has access to an adequate program of benefits in Blue Cross-Blue Shield."

Non-Group Enrollment Continuous

In addition to the Farm Bureau enrollment, Blue Cross-Blue Shield also carries on a continuous program of non-group enrollment. It is true that the non-group program costs individual families higher rates and requires that people join through the use of a Health Statement Application. Also, people 60 years of age and over are not eligible to join through the non-group program.

Nevertheless, this program does make it possible for young rural families and those in reasonably good health up to age 60 to get protection in Blue Cross-Blue Shield.

Special Community Effort in 1959

During 1959, Blue Cross-Blue Shield will conduct 12 special community wide non-group campaigns. These campaigns will be accompanied by intensive work in group enrollment, as well as by our Blue Cross-Blue Shield representatives. This means that during the county campaigns the organization will be contacting all employee groups in the areas and doing considerable work among prospective groups.

The purpose of this non-group campaign is to renew and stimulate interest in our program and to give people an opportunity to convert from less adequate forms of coverage to Blue Cross-Blue Shield. The campaigns this year are being held as follows:

Neosho	January 19-28
Barton	January 21-30
Ford	February 2-11
Leavenworth	February 18-27
Cowley	February 23-March 4
Saline	March 4-13
Reno	March 16-25
Douglas	March 18-27
Montgomery	April 13-22
Riley	April 15-24
Atchison	May 6-15
Seward	May 11-20

Both rewards for safe performance and punishment for safety violations have been tried in an effort to reduce the number of accidents on United States and Canadian highways.

Municipal authorities in Jackson, Michigan, reward motorists with free parking for one day each time the city goes 90 days without a traffic death. Paper bags hung over meters on the "celebration" days carry this wording, "Traffic Safety Day—Park Free Today. Continue to Enjoy Safety—Let's Go for 90 More!"

Suspension of his driver's license for life was the sentence handed out to a motorist in the Province of Alberta, Canada, after he had been found at fault in an accident in which his father was killed. He was convicted of driving "in a near-drunken condition" and while his license was suspended because of an earlier drunk driving conviction.

PROGRAM

14th Annual Conference on Rural Health
Broadview Hotel—Wichita—March 5-6-7, 1959

Horizons in Rural Health

THURSDAY MORNING SESSION
March 5, 1959

CARLL S. MUNDY, M.D., Presiding

8:00 Registration—No Registration Fee
9:45 Opening Service
Community Singing—Lester F. Weatherwax, Farm Director, Radio Station KFBI, Wichita
10:00 Invocation—Dr. Homer K. Schafer, Executive Director, Wichita Council of Churches, Wichita
10:05 Greetings—The Honorable George Docking, Governor of the State of Kansas, Topeka
10:10 Horizons in Rural Health—F. S. Crockett, M.D., Chairman, Council on Rural Health, A.M.A., Lafayette, Indiana
10:25 To the Stars through Difficulties—Louis M. Orr, M.D., President-Elect, A.M.A., Orlando, Florida
10:45 The Do It "Yourself" Age—Earl L. Butz, Ph.D., Dean of Agriculture and Director, Agricultural Extension Service, Purdue University, Lafayette, Indiana
Discussion Leader—J. P. Schmidt, Ph.D., Extension Professor, Agricultural Extension Service, Ohio State University, Columbus
11:40 Luncheon Period

THURSDAY AFTERNOON SESSION

ALLEN T. STEWART, M.D., Presiding

2:00 Community Singing
2:05 Experiment in Community Health Participation—Moderator: V. E. Wilson, M.D., Associate Dean, University of Kansas School of Medicine, Kansas City
3:30 Milk Break
3:40 Workshop (Continued)
4:15 Discussion
4:30 Recess

THURSDAY EVENING

CARROLL B. ANDREWS, M.D., Presiding

8:00 Recreational Program
Youth's Showcase—Presentation by Agricultural Extension Service, Kansas State College, Manhattan
Our Community's Answer—Spirit of Kansas, a vocal and instrumental presentation

FRIDAY MORNING SESSION
March 6, 1959

W. A. WRIGHT, M.D., Presiding

9:00 Community Singing
9:05 Rural Health Count-Down—J. D. Smerchek, Kansas Farm Bureau, Manhattan
9:20 Grange Thinking on the Rural Health Front—Roy Battles, Assistant to the Master, The National Grange, Washington, D. C.

9:35 Who Will Harvest My Wheat?—Aubrey D. Gates, Director, Division of Field Services, A.M.A., Chicago, Illinois
9:50 Discussion
10:10 Milk Break
10:20 Family Physician and the Cost of Medical Care—Conrad Barnes, M.D., Seneca
10:35 The Best Buy in Insurance—Charles H. Coghlan, Executive Vice-President, Ohio Medical Indemnity, Inc., Columbus
10:50 The Hospital Dollar—John Pond, Management Consultant to the Larimer County Hospital, Boulder
11:10 Discussion
11:45 Luncheon Period

FRIDAY AFTERNOON SESSION

F. S. HUMPHREY, M.D., Presiding

2:00 Community Singing
2:05 How Hospitals Get People Well—C. R. Brott, M.D., Beatrice, Nebraska
2:20 Mental Health as a Part of General Practice—Alonzo P. Peeke, M.D., Volga, South Dakota
2:35 The New Era of Aging—Frederick C. Swartz, M.D., Chairman, Committee on Aging, A.M.A., Lansing, Michigan
2:50 Discussion
3:15 Milk Break
3:25 Horizons in Mental Health—Prescott W. Thompson, M.D., Director, Out-Patient Service, The Menninger Clinic, Topeka
4:00 Discussion
4:30 Recess

FRIDAY EVENING BANQUET SESSION

F. S. CROCKETT, M.D., Presiding

7:00 Banquet
Invocation—Reverend Donald Frogge, Pastor, Upland-Alida Parish, Junction City
Introduction of Special Guests
Greetings—Woman's Auxiliary, A.M.A., Mrs. E. Arthur Underwood, President, Vancouver, Washington
Student A.M.A., Patricia Jean Arnold, Senior, University of Kansas School of Medicine, Kansas City
Musical Interlude
The Fifth Dimension—T. P. Butcher, M.D., President, Kansas Medical Society, Emporia

SATURDAY MORNING SESSION
March 7, 1959

NORMAN H. GARDNER, M.D., Presiding

9:00 Community Singing
9:05 This We Know—Mrs. E. Arthur Underwood, D.D.S., President, Woman's Auxiliary, A.M.A., Vancouver, Washington
9:25 Progress in the Control of Some Diseases of Animals Affecting the Rural Health—Martin P. Hines, D.V.M., American Veterinary Medical Association, Raleigh, North Carolina
9:45 Discussion
10:10 With Your Apron On or Off—Mrs. Kenneth D. Schneider, Nashville, Indiana
10:25 Discussion
10:35 Recess
10:45 Ideas Pay Off in Action—Paul C. Johnson, Editor, *Prairie Farmer*, Chicago
11:05 Discussion
11:15 Rural Health—Past, Present and Future—Franklin D. Murphy, M.D. Chancellor, University of Kansas, Lawrence

THE MONTH IN WASHINGTON

Editor's Note. The following summary of Washington news was prepared by the Washington office of the A.M.A. for distribution to state and regional medical journals.

Since the release last summer of the much-discussed Bayne-Jones report on medical education and research, the administration has been reviewing the situation and the possible need for Congressional action on federal aid to the country's medical schools.

Just how strong is its case is likely to be determined in the session of the 86th Congress now underway. In the closing phases of the 85th Congress, a health subcommittee of the House took up the subject amid a feeling at that time that proponents had failed to achieve a sense of urgency.

Another year has rolled around, and the climate may be different. The Bayne-Jones report revived the medical school aid issue. Not since the six-year-old report from the Magnuson Commission has a medical report been quoted so extensively. The Bayne-Jones report calls for a doubling of medical research spending by 1970 and the immediate start on at least 14 new medical schools.

Secretary Flemming of Health, Education, and Welfare let it be known soon after taking office last summer that he was not going to allow the report to be "put on the shelf to gather dust."

In an address to the American College of Surgeons, Surgeon General Leroy Burney sketched briefly a plan for another consultants' group not unlike the Bayne-Jones committee. It is now looking into the question of need for more physicians in the next decade. No date has been set for the final report. At its first meeting in December, the committee authorized two staff studies to get underway: on construction costs of newer schools and on the financing of present-day medical school operations.

Chairman of the group is Frank Bane, former executive secretary of the Council of State Governments and active in public affairs for more than 30 years. Other members include Dr. Edward L. Turner, American Medical Association's council on medical education and hospitals; Dr. Ward Darley, Association of American Medical Colleges; Dr. Julian Price, A.M.A. trustee; Dr. Edwin L. Crosby, American Hospital Association; Dr. Vernon Lippard, Yale medical school dean; John McK. Mitchell, Pennsylvania medical school dean; Dr. Isador S. Ravdin, Pennsylvania medical affairs vice president; Dr. Clayton G. Loosli, Southern California medical school dean; Dr. Charles E. Smith, University of California public health school dean; Morris Thompson, president, Kirksville College of Osteopathy and Surgery; Harold Hillenbrand, D.D.S., American Dental Association; Miss Marion Sheahan, National League for Nursing; Dr. Harold L. Enarson, Western Interstate Commission for Higher Education; Emory Morris, D.D.S., president, Kellogg Foundation; Douglas E. H. Williams, Dunbar Community Association; Fred C. Cole, Ph.D., Tulane; Robert C. Anderson, Ph.D., director, Southern Regional Education Board; Alvin C. Eurich, Ph.D., vice president, Fund for the Advancement of Education; John G. Searle, president, G. D. Searle and Co.; and the Very Rev. Robert J. Slavin, president, Providence College.

Its final report in all likelihood will have a strong influence on the course of legislation.

Notes

The Office for Dependents Medical Care has decided that this year's contracts for Medicare between the Defense Department and state medical societies and other groups will be negotiated by mail. ODMC felt that the whole field had been pretty thoroughly gone over last year and furthermore that administrative costs are no longer an issue. States will be supplied copies of proposed department changes in contracts 45 to 60 days prior to expiration dates, according to Brig. Gen. Floyd L. Wergeland, head of Medicare.

The National Air Pollution Conference held in Washington is beginning to produce results. HEW and the auto industry have worked out an agreement on research into devices for controlling auto exhausts. Exhaust experiments are underway at the Robert A. Taft Sanitary Engineering Center on animals, plants and bacteria.

Federal workers contributory health insurance proposal has taken a new lease on life. The AFL-CIO Government Employees Council which speaks for half a million civilian employees is suggesting the following: (1) the U. S. would pay for two-thirds of basic insurance up to a maximum contribution of $14 a month; the worker would pay the balance and could also broaden coverage for himself and family by paying the extra cost himself, (2) there would be a choice of basic insurance such as commercial Blue Cross, Blue Shield, employee union plans, (3) the government would pay the full cost of major medical insurance but the worker would have to have basic coverage; catastrophic coverage would meet 75 per cent of costs.

Congress has failed in past years to enact legislation. Among the reasons has been failure of the various interested groups to get together on a single bill.

Clinicopathological Conference

Chronic Focal Seizures and Acute, Progressive Clouding of the Sensorium

Case Presentation

An unresponsive and semi-comatose 79-year-old Negro man was admitted to KUMC for the first time on September 25, 1957, and died on October 5, 1957.

His history was obtained from his wife and daughter and from a neighbor who was a nurse. He had apparently been in his usual state of health until September 23, 1957, when he had right-sided seizures and was unable to speak intelligibly. He was seen by his family physician who made the diagnosis of a "stroke." Slight improvement was noted the next morning, but the seizures recurred that evening. The physician then advised emergency admission to this hospital.

For several years he had had intermittent seizures which consisted of an abrupt cessation of activity and several moments of expressionless staring followed by shaking motions which spread from his left hand to his left foot and then over his whole body. These seizures frequently lasted for hours and were followed by a long sleep and an uneventful recovery. He was on no known medication.

The patient was a well developed but emaciated and dehydrated man with continuous and simultaneous clonic, convulsive movements of the left side of his face, left arm, torso, and lower extremities. His blood pressure was 125/75; pulse rate, 96 and regular; respiratory rate, 24; and temperature, 99.6 degrees rectally. His head turned tonically to the right, but his neck was supple. The eyes deviated to the right, and the pupils were small and fixed. The fundi were mildly arteriosclerotic. The chest was emphysematous, and dry rales were heard throughout both lung fields. Decubiti were present on the buttocks. The deep tendon reflexes were hyperactive but equal; there were no pathological reflexes. The left nasolabial fold was diminished. The teeth were carious.

The catheterized urine specimen had a specific gravity of 1.008, one plus albumin, no sugar, a few red blood cells, 40 to 50 pus cells per high power field with occasional clumps, and the specimen was loaded with motile bacteria. The hematocrit was 40 ml., and the hemoglobin was 14.1 gm. per cent. The white count was 12,500 with 83 per cent polymorphonuclears (71 per cent filamented), 14 per cent lymphocytes, 3 per cent monocytes. The Kolmer titer was 256 units; Kahn, 64 units. The blood urea nitrogen was 10.1 mg. per cent; blood sugar (during infusion of glucose), 117 mg. per cent; sodium, 137 mEq/L; potassium, 4.6 mEq; chloride, 105 mEq; and carbon dioxide, 23.2 mEq. The spinal fluid was clear with an opening pressure of 115 mm., a closing pressure of 110 mm., and a white count of 59 with 84 per cent lymphocytes. The spinal fluid sugar was 94.4 mg. per cent; chloride, 760 mg. per cent; and total protein, 45.5 mg. per cent. The Kolmer titer was 64 units, and the colloidal gold curve was 5555332110. A urine culture grew Aerobacter aerogenes and enterococci resistant to all agents. An electroencephalogram was completely dominated by rhythmical triphasic spike complexes occurring in long bursts with some rightsided preponderance (Figure 1).

The patient's temperature remained normal throughout his hospitalization. His pulse rate promptly dropped to 60 per minute; his blood pressure remained at 110/70. Daily fluid intake varied from 1,400 to 3,050 ml., and the daily output varied from 350 ml. to 4,000 ml.

An indwelling catheter was inserted, and he was given prophylactic penicillin throughout his entire hospitalization. Almost all of his intake was by intravenous infusions of 5 per cent glucose, with hydrocortisone being added to the earlier infusions. He was given diphenylhydantoin sodium (Dilantin) in daily doses of 300 mg. rectally, and 300-400 mg. of phenobarbital sodium, intramuscularly. On September 26 he was alert enough to obey commands and speak a few words. On September 28 he could swallow, but not well enough to allow adequate intake of food or fluids. The seizures continued until September 30 when he was given 9 ml. of paraldehyde, rectally. His condition began to deteriorate, and he again became unresponsive on October 3. On October 5 his respiratory rate became progressively slower and he died.

Edited by Jesse D. Rising, M.D., and Mahlon Delp, M.D., from recordings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology and pathology of the University of Kansas Medical Center, as well as by the third and fourth year classes of students.

Dr. Mahlon Delp (moderator): Are there any questions?

Gerald Oehler (fourth year medical student):* What was meant in the history by "his usual state of health"?

Dr. Robert Hudson (instructor in medicine): He had seizures, and he probably spent a lot of time in bed.

Ronald Kloster (student): Was there any evidence of trauma before the onset of his illness?

Dr. Hudson: No, there was not.

Mark Devine (student): Did he become completely unconscious during his previous seizures?

Dr. Hudson: No.

Asher Dahl (student): How much hydrocortisone did he receive during his hospitalization?

Dr. Hudson: He was given three doses of 50 mg. each over a three-day period, a total of 150 mg. of hydrocortisone.

Mr. Kloster: When did the syphilis develop?

Dr. Hudson: We have no information on that.

Mr. Devine: Was he comatose on admission, or was he just unresponsive?

Dr. Hudson: He was semi-comatose, responding to painful stimuli but unable to rouse himself to speak.

Gordon Cowles (student): Was he paralyzed at any time?

Dr. Hudson: Not to my knowledge.

Mr. Devine: How much paraldehyde did he receive?

Dr. Hudson: He received three doses of 3 ml. each.

Ernest Gilbertson (student): Was he able to wrinkle his forehead?

Dr. Hudson: Yes.

Ned Noll (student): Was there any history of headaches or vomiting?

Dr. Hudson: No.

Mr. Devine: Were the fundi adequately visualized?

Dr. Hudson: Yes.

Mr. Devine: Was there papilledema?

Dr. Hudson: No.

Mr. Noll: Did he receive any intravenous medication?

Dr. Hudson: He was given amobarbital sodium on the night of admission.

Mr. Cowles: Did he have pulmonary edema?

Dr. Hudson: No.

Mr. Gilbertson: Was Babinski's sign present?

Dr. Hudson: No, it was not.

Mr. Cowles: Did he have right-sided seizures before admission and left-sided ones afterwards?

Dr. Hudson: Yes.

Dr. Delp: If there are no more questions, we will now see the electrocardiogram.

Mr. Oehler: A tracing taken on September 25, 1957, shows a regular sinus rhythm with a rate of approximately 100 per minute. There is low voltage throughout. There are sporadic irregularities throughout the tracing, and I interpret them as the result of the clonic convulsions; otherwise, I see no abnormalities in this tracing.

Dr. Delp: We will now see the x-rays.

Mr. Gilbertson: A chest film taken on the day of admission shows general decreased density over both lung fields. The patient apparently was rotated to the left, and there is a scoliosis to the right. The ascending aorta is prominent and tortuous. The diaphragm on the left side is elevated, and there is gas in the bowel pushing it up. This could be caused by paralysis of the phrenic nerve to the left diaphragm.

A PA and lateral film of the skull shows some calcification in the occipital area and in the midline which I interpret as calcification in the falx. There is no erosion of the tables of the skull.

Dr. Delp: Mr. Dahl will now give his differential diagnosis.

Differential Diagnosis

Mr. Dahl: This 79-year-old man entered this hospital with a history of recurrent left-sided seizures for several years and a transient right-sided

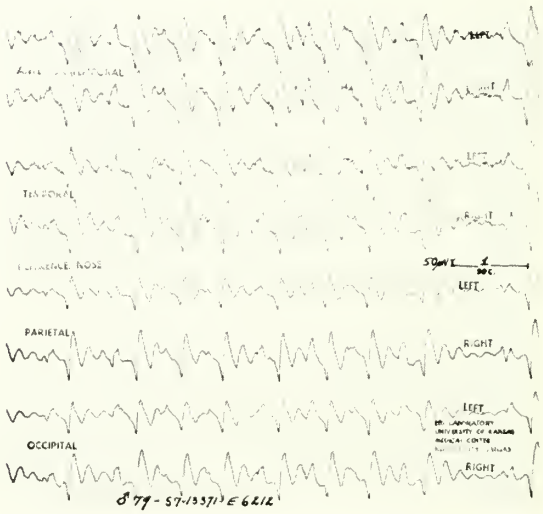

Figure 1. Electroencephalogram taken September 27, 1957.

*Though a medical student at the time of this conference in January, 1958, he, like the others referred to as students, received the M.D. degree in June, 1958.

seizure two days before admission. When examined here he was unresponsive, emaciated and dehydrated. Spinal fluid and serum tests were positive for syphilis.

Basing my differential diagnosis on causes of coma, I shall first rule out metabolic disturbances and intoxication such as heavy metals, alcoholism, drugs, and botulism because of the lack of history, signs, symptoms, and laboratory findings. It is difficult to dismiss trauma because of the history of recurrent seizures, but there was no history of trauma. Furthermore, the bilateral lesions cannot be explained on the basis of trauma or of a subdural hematoma caused by trauma.

Idiopathic epilepsy is not an attractive diagnosis because only ten per cent of these cases occur after the age of 30, and Jacksonian seizures are uncommon in this type of epilepsy.

Primary cardiovascular disease can be dismissed as a possibility because there was no indication of fibrillation or myocardial infarction. I shall not consider cerebral hemorrhage as a primary diagnosis because there was no hypertension and because the cerebrospinal fluid was clear. Approximately 85 per cent of patients with cerebral hemorrhage have bloody or xanthochromic spinal fluid.

Thrombosis secondary to arteriosclerosis should be considered as a cause of the recurrent seizures, but I shall rule it out because of the bilateral signs. Primary and secondary tumors of the central nervous system must be considered because seizures are often the first signs of tumors that appear after the age of 35. Secondary tumors can be ruled out because of the lack of a primary site, and I dismiss primary tumors of the central nervous system because the spinal fluid pressure and the protein were normal, and because there was no papilledema. X-rays are helpful in 66 per cent of these cases, but our films were not contributory and arteriograms could not be done because of the patient's condition. Furthermore, bilateral lesions are difficult to explain by single tumor.

Diffuse encephalitis can be ruled out because, although convulsions occur in these cases, there were no other signs or symptoms of this entity. Meningitis is unlikely because there were no appropriate spinal fluid findings.

Cryptococcal fungi must be considered here, but meningeal irritation occurs in this disease, and there is usually an expanding mass in the brain. There was no indication that our patient had meningeal irritation, and there was no papilledema or increased pressure.

Intercranial abscesses are rare without a primary source such as middle ear infection and intercranial suppuration, and there was no evidence of either of these.

Finally, I believe our patient had neurosyphilis. He had a history of recurring left-sided seizures described as an abrupt cessation of activity for several moments, an expressionless staring, a shaking motion beginning in the left hand and extending to the left foot and then throughout all of the body, lasting for several hours and followed by sleep. This is a typical description of a Jacksonian seizure. Lesions which cause seizures such as his are found in the right motor cortex or in the premotor area. It has been stated that arteriosclerosis could present this picture, and it also could have been due to syphilis. Neurosyphilis is a proliferation of the vascular intima and infiltration of the media and adventitia by inflammatory process. This produces a narrowing of the vessels by thrombosis and may lead to infarction of the brain. Sixteen per cent of patients with this type of lesion have seizures during the primary attack. Lissauer's focal atrophy also causes seizures and may be another possibility. Several days before admission our patient had a transient apoplectic right-sided seizure which may have been caused by a thrombosis in the left motor or pre-motor area. Syphilitic apoplexy is often transitory.

After admission the seizures were again predominantly on the left side. The head and eyes were turned to the right perhaps as the result of an irritative lesion on the left side of the brain causing the acute right-sided seizures which occurred just before admission.

There was ironing out of the left nasolabial folds which may have been caused by luetic involvement of the seventh cranial nerve. The cerebrospinal fluid contained 59 white cells, and the protein was only slightly elevated. The spinal fluid serology was positive, and the gold curve was of the paretic type. I consider these findings to be indicative of active neurosyphilis.

Aneurysm of the aorta is a common finding in cases of syphilis of the central nervous system, but I do not believe that one can be diagnosed in this instance.

Our patient was advanced in age, emaciated, dehydrated, and unresponsive. The decubiti probably indicated that he had been bedridden for several days. Decubiti may, however, occur rapidly in patients with poor health, even within 24 hours. I believe that he was in a terminal state of neurosyphilis. The common causes of death in this disease are convulsive seizures, intercurrent infection, and respiratory failure. There is no evidence for the first two mentioned, but respiratory failure may

have been caused by a late involvement of the respiratory center. A paralyzed diaphragm may also have contributed to respiratory embarrassment.

The steroids which he received may have increased the risk of thrombo-embolism causing some final thrombosis of the respiratory area and resulting in death.

Clinical Discussion

Dr. Delp: Thank you. What is your diagnosis, Mr. Devine?

Mr. Devine: Neurosyphilis with parenchymal and cerebrovascular involvement. The cerebrovascular symptoms with endarteritis could have caused thrombosis or ischemia and explained the convulsive episodes.

Dr. Delp: Mr. Kloster?

Mr. Kloster: I agree with that diagnosis.

Dr. Delp: Mr. Noll?

Mr. Noll: I agree, but I believe the primary involvement was vascular.

Dr. Delp: Mr. Devine, will you explain the background for the seizures?

Mr. Devine: It has been reported that a person who has had a stroke at about the age of our patient could recover completely and then have a small infarcted area on the right side. These seizures may also have been caused by cerebrovascular insufficiency.

Dr. Delp: Mr. Kloster?

Mr. Kloster: The seizures may have been caused by thrombosis secondary to arterioclerosis, but endarteritis would probably best explain a necrosis and thrombosis of the brain.

Dr. Delp: Mr. Oehler?

Mr. Oehler: There might have been focal atrophy.

Dr. Delp: What evidence do you have for that diagnosis?

Mr. Oehler: Focal atrophy gives rise to focal seizures.

Dr. Delp: Mr. Gilbertson, what do you believe was the cause of his seizures?

Mr. Gilbertson: I believe they were caused primarily by arteritis.

Dr. Delp: Mr. Dahl, the patient apparently had syphilis for a long time. Why did it suddenly become so much worse?

Mr. Dahl: A progression of paresis may halt for as long as ten years, then, for unknown reasons, it becomes active again.

Dr. Delp: What is your opinion of the aorta?

Mr. Dahl: It was tortuous, but I cannot diagnose an aneurysm.

Dr. Delp: Mr. Kloster, did he have an aneurysm?

Mr. Kloster: I believe the patient was rotated in order to bring the aorta to the right side of the mediastinum, but it was not large enough on that side to make a diagnosis of aneurysm.

Dr. Delp: Dr. Tice, what is your opinion?

Dr. Galen Tice (radiologist): Some of the aorta was tortuous, but I believe it was negative.

Dr. Delp: What was the final cause of the patient's death, Mr. Noll?

Mr. Noll: A relatively high incidence of small thromboses with endarteritis occurs in meningovascular syphilis, the most common site being the cortex and the brain stem. I believe there was thrombosis secondary to endarteritis.

Dr. Delp: Could the medication have contributed to his condition?

Mr. Oehler: It has been reported that barbiturates may increase the activity of neurosyphilis.

Dr. Delp: May we have your comments, Dr. Steegmann?

Dr. Theodore Steegmann (neurologist): My diagnosis at the time of admission was epilepsia partialis continua[1] or, in other words, a continual-acting form of seizure of the clonic type. An interesting feature of these seizures is that the discharge lesion, at a regular rhythmic rate, was confined to the arm, leg, and trunk muscle on the same side, but did not involve the face. In view of the fact that the face and arm area are associated in the cortex, it is remarkable that he had no facial twitchings.

When I first saw the patient I suspected that he might have a syphilitic brain disease, and after receiving the spinal fluid and serology reports I was certain that we were dealing with a case of dementia paralytica which is a diffuse, non-suppurative form of encephalitis confined to gray matter. The lesions are more or less universally distributed in the brain, but in this particular case they were probably of the Lissauer's type because of the focal nature of the epileptic discharging lesion. The Lissauer's form of dementia paralytica[2] does not require any associated vascular degeneration, only in the sense that all patients with dementia paralytica have an inflammatory reaction around the capillaries and the small arteries and, in that sense, there may be a disturbance in blood supply. The larger vessels of the brain may not necessarily be involved, and the ordinary type of Heubner's panarteritis usually affects the medium-sized arteries particularly at the base of the brain. This pathological process is usually not noted over the cortical area. A meningovascular process was not seriously considered as the primary cause of the seizures, but it is possible to assume that the process was

old, and that the patient may have had a meningovascular process which produced changes in the vessels that continued to be active. Another type of vascular disease seen in syphilis is a peculiar form of arteritis of the capillaries that resembles the changes seen in lead encephalopathy. It is a relatively rare condition and not usually associated with an active dementia paralytica. I belive this patient died from continuous seizures which produced exhaustion, together with the fact that within the last two days of his life he had large decubiti that could have been a portal for sepsis.

Dr. Delp: Thank you. May we have your comments, Dr. Poser?

Dr. Charles Poser (neurologist): I agree with Dr. Steegmann about the pathology, but I wonder, in retrospect, whether adequate medication would have prolonged his life. There was no evidence of any lung disease. Perhaps he did not metabolize the barbiturates, but I do not believe that he had a particularly high dosage. He did respond on the eighth hospital day, but he died four days later. It is possible that he died of a vascular accident, but it is my belief that he died of exhaustion from status epilepticus.

Dr. Delp: He apparently had slowed respiration for several hours before death. A nurse's note at that time stated that he was breathing progressively more slowly and, although a doctor was called, he found him dead on arrival. Dr. Allen, may we have your opinion as to the cause of death?

Dr. Max Allen (internist): It is unusual in these days to present syphilis at a pathological conference, assuming that syphilis was the cause of death. I am not implying that it was not the cause of death, but only that syphilis is becoming less common as a cause of death. The lack of a history before the patient's terminal event makes it difficult to classify his syphilis.

As pointed out by the student, the presence of decubitus ulcers suggests that he had been quite ill and bedfast for a long time. The members of his family could easily have believed that this was the debility of old age, when perhaps he was gradually becoming paralyzed as a result of central nervous system syphilis of the general paresis type. Spinal fluid findings are sometimes helpful in this regard, and this was a so-called paretic type or early zone curve.

Pathologically speaking, I believe the patient could be expected to have cardiovascular syphilis, that is, vascular lesions and round cell infiltration in the mesaorta and perhaps in the myocardium. There should be gross evidence of cardiovascular syphilis simply from a statistical standpoint. Reduction of motor function of the respiratory muscles and gradual paralysis is probably the most common cause of death in patients with this type of syphilis. The elevated left diaphragm, which I believe was paralyzed, would be a strong point in favor of an aneurysm of the aorta with involvement of the left phrenic nerve. There is no information as to whether the laryngeal nerve was involved, but it usually is involved by an aneurysm.

Finally, I believe that general paresis with meningovascular lesions was the primary classification of the patient's disease. In meningovascular syphilis the administration of penicillin has been followed by Herxheimer reactions and local aggravation of the lesions. A Herxheimer reaction with fever is unusual as the cause of death, and this patient was reported to have had a normal temperature throughout his hospital course. The increase of inflammatory reaction, edema, and round cell infiltration attendant upon a Herxheimer reaction from the penicillin cannot, however, be overlooked as a possible cause of his death.

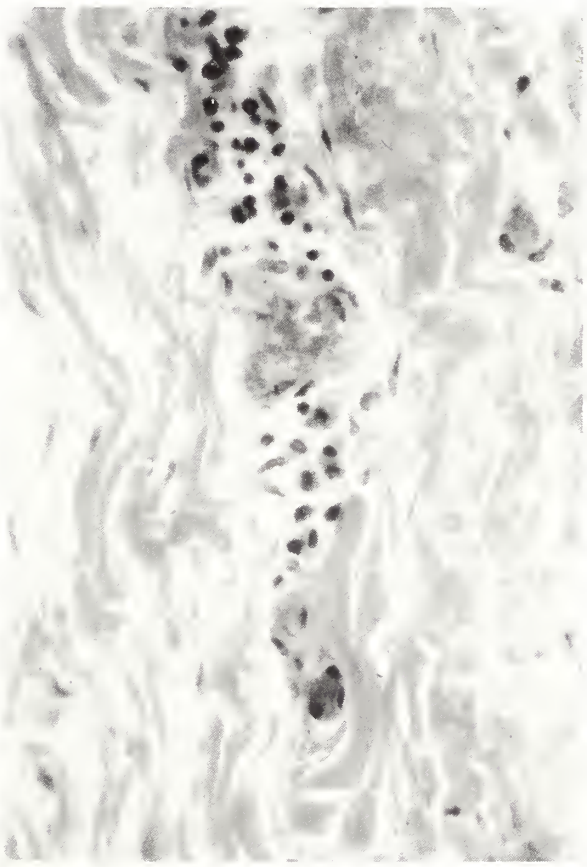

Figure 2. Perivascular infiltrate of lymphocytes and plasma cells in the vasa vasorum. Hemotoxylin and eosin X400.

Figure 3. Focal destruction of elastica in aorta. Verhoeff van Gieson X100.

Dr. Delp: This case was obviously selected because patients with active central nervous system syphilis are rare in these days. The high incidence of coincidental system involvement—central nervous system and cardiovascular—with late syphilis is common, and for that reason it should be considered in the differential diagnosis and in the final cause of death.

The tube feeding should also be considered here, not because the pathologist will necessarily make any comment about aspiration pneumonia, but because I have a great fear of tube feeding any patient in the modern hospital. It would be fine if one could tube feed one's patient himself, but it certainly should not be delegated as it is an extremely dangerous procedure. We will now have Dr. Smith's report.

Pathological Report

Dr. O. Dale Smith (pathologist): We shall dismiss a few of the incidental findings first. With relation to the lung, there was moderate diffuse emphysema; in addition, a thrombus was found in one of the smaller pulmonary arteries. An infarction, 2 x 3 cm., was produced which extended out to the pleura leading to a focal pleuritis. The patient did have generalized arteriosclerosis. There was a general reduction in the weight of all of his viscera: liver, 950 gm.; heart, 260 gm.; spleen, 40 gm.; the kidneys, 90 gm. each. Though he was of small stature (weight 120 pounds) the small size of the viscera is undoubtedly a change of senescence.

Now, to focus our attention on the more specific disease leading to this final and dramatic illness, the patient was in the late stage of syphilis. The aorta at its valve measured 9 cm. in circumference (normal range 6 to 7.5 cm.). There was a uniform dilation of the thoracic aorta which was most pronounced in the ascending portion. As is well known, luetic aortitis is almost entirely a disease of the thoracic aorta, and involvement of the more distal portions is increasingly more uncommon. Thus, when faced with changes in the distal aorta, one is probably dealing with the complications of atheroma-

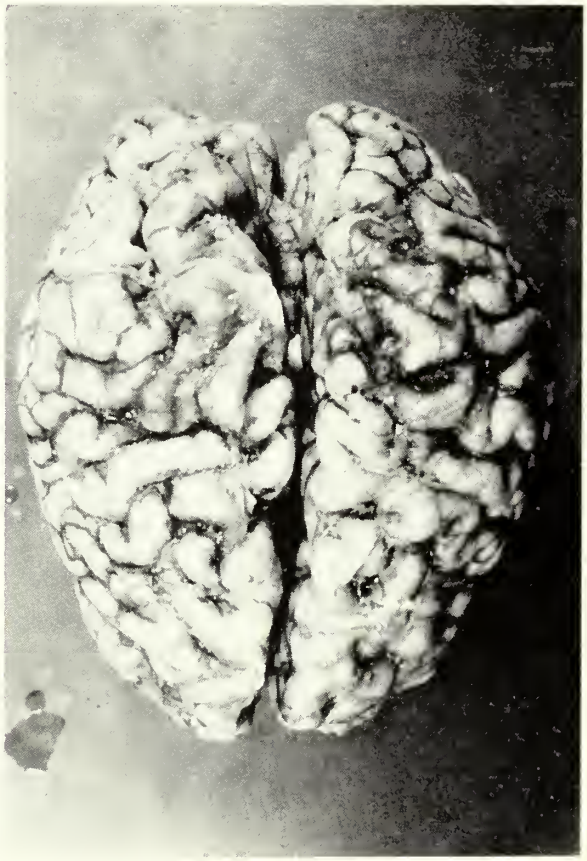

Figure 4. Convexity of cerebrum demonstrating atrophy characterized by narrowed gyri and widened sulci.

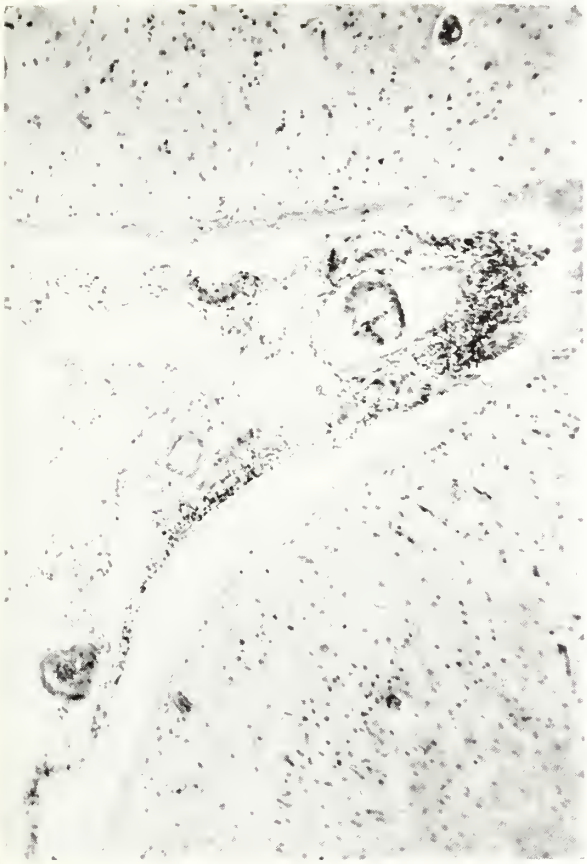

Figure 5. Leucocytic infiltration of the leptomeninges. Hemotoxylin and eosin X100.

tous disease, whereas changes in the proximal portions of the aorta are more frequently those of syphilis. The microscopic examination of this organ showed proliferation of the intima. The vasa vasorum penetrated deeply into the media and there was perivascular infiltration of plasma cells and lymphocytes (Figure 2).

An elastic stain of the ascending portion of the aorta showed much loss of elastica, and remaining elastic fibers were frayed and thickened, thus demonstrating the profound effect of the aortitis upon the elastic tissue (Figure 3). These changes of perivascular infiltration of the vasa vasorum and the changes in the elastica are characteristic of syphilis.

The leptomeninges were thickened and slightly opaque, most noticeable over the right frontal area and over the base. There was marked widening of the sulci and narrowing of the gyri leading to an exaggeration of the surface markings of the brain, all of which are indicative of an appreciable diffuse atrophy. In spite of this the brain weighed 1,350 gm., which was within the normal range (Figure 4).

Microscopic study revealed a meningeal involvement characterized by mononuclear leucocytic infiltration. This diffuse change became somewhat more prominent in the depths of the sulci (Figure 5). There was, however, no evidence of the endarteritis that is so frequently seen in meningovascular syphilis; contrastingly, the cerebral cortex showed not only the larger arteries involved by a perivascular lymphocytic and plasma cell infiltrate in the space of Virchow-Robin (Figure 6), but the capillaries were diffusely involved as well.

The atrophy of grey matter was easily apparent, and in addition the neurones showed chromotolysis and other acute degenerative changes.

One of the characteristic findings in classic dementia paralytica or paresis is peculiar proliferation of the microglia forming the rod cells, a finding commonly seen in our case (Figure 7). They characteristically are oriented with the direction of the paths of the nerve fibers.

In the fourth ventricle there were small granulations of the ependyma that consisted of focal areas of subependymal gliosis (Figure 8).

In summary, there was a general atrophy of the

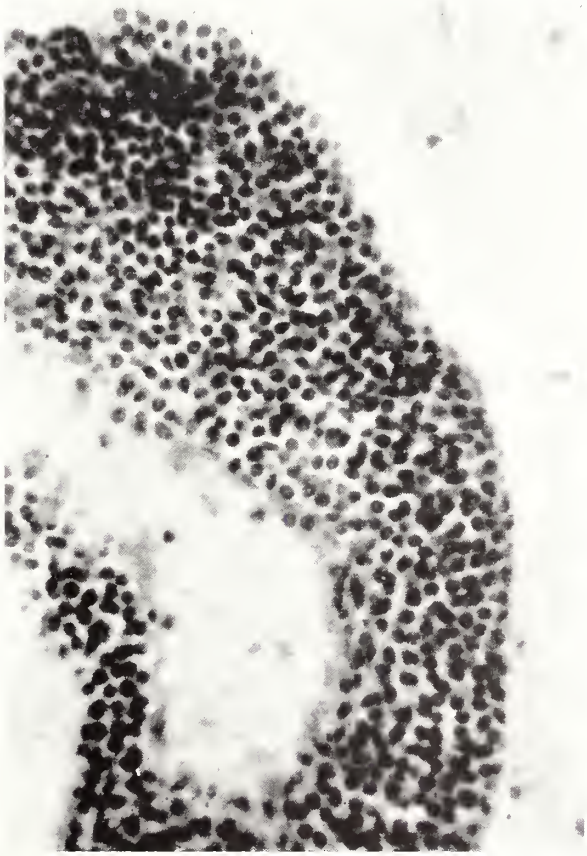

Figure 6. Leucocytic infiltrate around blood vessel in cerebrum. Hemotoxylin and eosin X400.

cerebrum which was probably more pronounced in the right frontal area; the microscopic changes were diffuse. Cerebral atrophy, diffuse meningeal and perivascular infiltration, microglial rod cells, and subependymal gliosis make a pathologic complex highly characteristic of paresis or dementia paralytica.

Mr. Devine: Was there an iron stain?

Dr. Smith: Yes. There was some hemosiderin in macrophages surrounding the cerebral vessels, and this is not an uncommon occurrence particularly in brains of older people with arteriosclerotic changes. There was no hemosiderin in the rod cells as has been frequently reported in other cases of paresis.

Dr. Delp: Do you believe our patient probably had this longer than 2½ years?

Dr. Smith: Yes, probably as long as ten years.

Summary

Dr. Delp: The prevention and control of syphilis, even though not complete, is one of the important triumphs of modern medicine. In fact, late manifestations of this disease are so rare as to make teaching their fundamental characteristics next to impossible because of a lack of patient material.

Figure 7. Rod cells in cerebral cortex. Hemotoxylin and eosin X400.

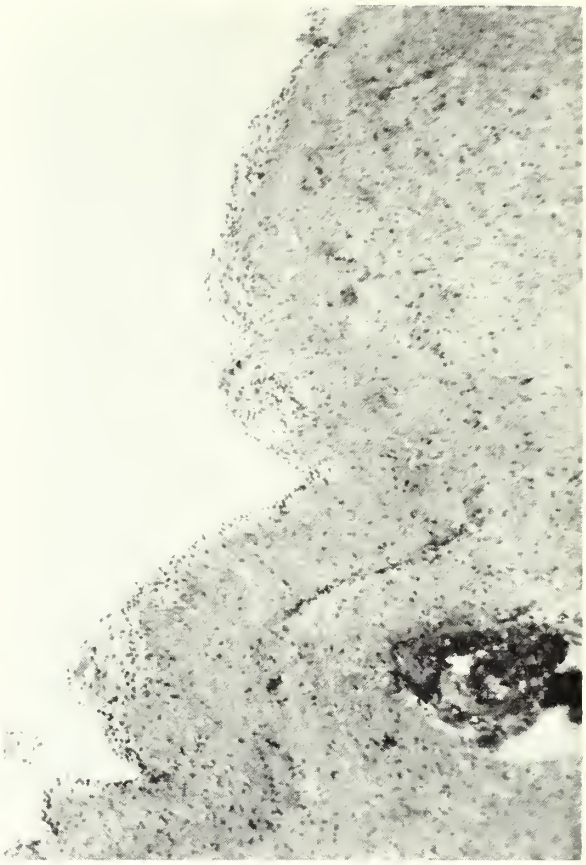

Figure 8. Gliosis of sub-ependyma in fourth ventricle. Hemotoxylin and eosin X100.

The slow, irrevocable, progressive deterioration of this patient is well demonstrated in the visceral atrophy so strikingly demonstrated by the pathologist.

Other features in this case, to be expected, are the concomitant involvement of the aorta and eventual death from the devastating exhaustion of continuous convulsions.

Pathological Anatomical Diagnosis

Primary

Late syphilis; moderate diffuse meningitis; moderate diffuse cerebral atrophy of frontal parietal and temporal lobes of the brain; aortitis with mild dilatation of the ascending arch and the thoracic portions.

Recent pulmonary embolus with infarction of the lower lobe of the right lung.

Acute passive pulmonary congestion.

Decubitus ulcer of skin over sacrum and over right trochanter.

References

1. Wilson, S. A. K., and Bruce, A. N.: Neurology, Ed. 2, Williams and Wilkins Co., Baltimore, 1955, vol. 3, p. 1637.
2. Ibid. Vol. 1, p. 535.

THE KANSAS PRESS LOOKS AT MEDICINE

Editor's Note. In this section the JOURNAL *reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.*

Rural Doctors in Kansas

A field where Kansas has clearly taken the lead is that of providing young medical doctors for rural areas.

Under a vigorous program launched eight years ago by the University of Kansas School of Medicine, this dramatic result has been obtained:

1. All 105 Kansas counties have the services of at least one physician.
2. There is no community with a population of 1,000 or more that is without a doctor.
3. There are many towns of less than 1,000 population that have the services of several physicians.

A major key to this astonishing record has been the medical "preceptor" program of K.U.

As described by Dr. W. Clarke Wescoe, dean of the K.U. Medical School, in a recent article in the *Journal of Medical Education*, the program involves sending out young medical students to selected small towns in Kansas to get a taste of rural medical practice.

This allows "a close personal rapport between the student and the patient and between the student and his teacher (the local resident doctor)." It also "reveals to the student, the gratifications that result from practice in relatively rural areas, thereby encouraging suitable young physicians to establish such practices, which we need desperately."

Some 70 doctors scattered across Kansas cooperate with the university in the role of "preceptors."

This is a Kansas University program that should be even more widely known and appreciated than it is. It is one cogent answer to the "what for" questions that arise as K.U. and other state institutions of higher learning ask for higher budgets year after year from the Legislature.—*Wichita Eagle, December 29, 1958.*

House Calls Still Vital

Although American medical colleges had a record enrollment of 29,473 students in 1957-58, the population has increased too, and the services of doctors still are spread thin.

Bearing this in mind, it is especially reassuring to have a family doctor who will make a house call.

This was brought home to me emphatically during the recent illness of my two daughters. Rushed as he was, our doctor took time out to reassure my anxious wife and prescribe medicine for children who couldn't sleep.

When I was a child this was commonplace, but the practice has become less fashionable lately. The *A.M.A. News* recently reported the remarks of a young physician: "I don't make house calls."

Most of the time, doctors say, the medical problem presented in a house call is not too difficult. This is not always the case, however.

He may find himself in a situation where he must rely on his own knowledge of physiology, chemistry and anatomy, without the aid of x-ray or laboratory.

He must rely on his skill in physical diagnosis and his knowledge until the other aids can be put to use.

There is no question that a patient can be examined more carefully in the office, and patients should go there whenever possible.

An experienced doctor can often appraise the situation in a telephone conversation and make suggestions that will get the patient by until he can get to the office.

But doctors indicate they sometimes are left with misgivings that they may have overlooked something. This is part of the responsibility physicians assume that makes them dear to the community.

The house call, as troublesome as it may be to busy doctors, is an institution that bolsters confidence in medicine.—*Ted Blankenship in Hutchinson News, December 17, 1958.*

No Incentive

Doctors and dentists who practice under England's health insurance plan are looking forward to the new year with some degree of pleasure. After January 1 they will receive a four per cent increase in income.

This will not, however, put them in the luxury class because the average net income of general practitioners still will be only $6,788 a year.

This explains, to some extent, why Britain's medical men are not very enthusiastic about the health insurance plan. It might explain also why students applying for medical training at state expense are not up to the standard of other years.—*El Dorado Times, December 2, 1958.*

Economics

Present Status of United States Savings Bonds

LORIN E. SIBLEY, *Topeka*

What would you do with 24 million dollars?

While few Kansans must answer that question as individuals during 1959, Kansans as a whole must decide how best to handle that sum of money during 1959, for that is the estimated worth of Series F and Series G United States savings bonds, owned by Kansans and Kansas organizations, which will mature during the year.

The 24 million dollar figure is the estimated Kansas share of the close to two billion dollars in Series F and G savings bonds which will mature in 1959 throughout the nation.

Since many doctors as individuals own Series F and G savings bonds, and since they are often asked to serve on the boards of institutions and associations whose investment portfolios include F and G bonds, many will be called upon to help with the answer to the 24 million dollar question in Kansas.

Nor will the necessity for considering this question end with 1959, for a like amount will again become available in 1960 through the maturing F's and G's. In fact, the question will continue to recur annually until 1964.

In 1964 the question will become handling J and K bonds which replaced the F and G in 1952. The J and K maturities will be complete in 1969.

The first suggestion to be made is to point out that interest is discontinued immediately when a Series F or G bond matures.

While the Series E bond re-invests itself at maturity and continues to increase in value if not presented for payment, F and G bonds must be redeemed and re-invested if earnings are to be continued. One might say that the popular re-investment feature of the Series E bond does not apply to any other series.

Now that we have made sure that the maturing F and G bond will be presented for payment when it matures, what shall we do with that 24 million dollars that Kansans will want to put back to work in 1959?

"Can the investment be continued in savings bonds?" would be a natural first query.

The answer is "Yes" for all individuals, associations, corporations, partnerships, organizations, and institutions with the exception of commercial banks. Maturing F and G bonds owned by either individuals or by others with the exception of commercial banks may be re-invested in either Series E or Series H bonds.

There are some general considerations which should be followed with points related specifically to either the Series E or the Series H bonds.

When the Series E and Series H bond were revised in early 1957, a new purchase limit of $10,000 maturity value was fixed for each series. This limit was retained when Series E and Series H were made available for purchase by other than individuals.

The $10,000 limit closed the door on re-investment for many individuals as well as institutions if annual purchase had already exceeded the ceiling figure. This condition became widely known and led to the impression that one could continue investments in savings bonds only in a limited number of cases.

However, regulations announced in the last half of 1958 have removed the limit restriction as it applied to both individuals and institutions who wished to use the Series E and Series H as an investment outlet for maturing F and G bonds.

"Can the investment be continued in savings bonds?"

Again, the answer is "Yes." Maturing Series F and G bonds can now be exchanged for Series E or Series H bonds, or both, without limitation on annual purchases. New money can be invested to the limit of $10,000 per year (maturity value), and in addition the proceeds of the maturing bonds can be re-invested irrespective of the new-money investment programs.

Since Series G bonds provide current income through payment of interest twice annually, and since amounts invested in Series G bonds exceeded investments in Series F bonds, current income appears to have been an important consideration in original investments and will likely continue to be so in re-investment.

The Series H bond offers that current income provision with interest payments being made twice each year by treasury check.

Following are several points of comparison between the Series H and the Series G bonds:

Interest rate:

Mr. Sibley is state director, Kansas office of the Savings Bonds Division of the United States Treasury Department, 711 Quincy Street, Topeka.

Series H—3.25% if held to maturity
Series G—2.53% if held to maturity

Redemption:
Series H—On the first day of any calendar month after six months from issue date and on one month's written notice.
Series G—On the first day of any calendar month following one month's written notice.

Redemption value:
Series H—Par value
Series G—Adjusted values each six months, but reaching par only at maturity.

Bond life:
Series H—10 years
Series G—12 years

Whether for individual re-investment or for re-investment by other than individuals, the four comparisons point out important and attractive advantages coming to the bond owner through exchange of matured F and G bonds for the new Series H bond. The comparisons also highlight some of the features which make the H bond an attractive new-money investment instrument.

Although the Series H bond might appear to appeal to most F and G holders, the Series E as an exchange possibility should be given consideration.

Perhaps more people understand the Series E bond than understand any other investment or saving security available to the American public. In fact, it is the Series E bond that forms the basis for the estimate that 40 million Americans now own one or more savings bonds—and that means one person in every four, or more than 500,000 Kansans alone.

For 17 years, Americans have known the Series E bond as that bond which returns "four dollars for every three invested." The Series E bond earns at the rate of 3.25 per cent annum if held to maturity; it may be redeemed any time after two months from date of issue without advance notice, generally at the same place from which it was issued; it matures in 8 years and 11 months.

Both the Series E and the Series H bond share "enduring virtues" such as:

Guaranteed redemption values, not subject to the risks of market fluctuations;

Absolutely indestructible, since the treasury will replace without cost to the holder any bond lost, stolen, or destroyed;

Backed by the faith and credit of the United States government;

Redeemable at a multitude of outlets throughout the nation.

Providing for the exchange of maturing Series F and G bonds for either Series E or Series H savings bonds without regard to the annual purchase limits makes it possible for both individual and non-individual investors to continue the savings bonds investment programs established 12 years ago without interfering with current saving and investing programs.

No attempt has been made to relate the suggestions to specific cases since points considered have been the general bases from which savings bonds investment programs can be continued.

Your banker continues to be a leading savings bonds exponent. Your discussion of the application of the general exchange and investment provisions with him will likely chart the best course to follow.

Research Professorship at K.U.M.C.

A research professorship in human reproduction at the University of Kansas School of Medicine was announced last month by Dr. W. Clarke Wescoe, dean. Dr. Thomas H. Clewe was named to the post.

Dr. Clewe came to Kansas from Yale University's Department of Anatomy. He received his medical degree from Stanford University and later was a research assistant in physics, pharmacology, and obstetrics and gynecology there. He went to Yale in 1956.

A laboratory has been set up in Kansas City for his work, the study of the physiology of reproduction and application of tissue culture techniques to tubal function and fertilization.

"The establishment of this professorship will put us on the road toward learning as much about human reproduction as we know about reproduction in lower species and in plants," said Dr. Wescoe. "It strengthens the position of the University of Kansas in the study of mammalian reproduction and genetics with the aim of becoming an outstanding research center in these fields."

Arthur Kemp, Ph.D., professor of economics at Claremont Men's College and Claremont Graduate School, Claremont, California, has been appointed director of the American Medical Association Bureau of Medical Economics. He succeeds Frank G. Dickinson, Ph.D., who is retiring.

Dr. Kemp has taught economics for 18 years, at New York University before he went to California. Since 1943 he has assisted Former President Herbert Hoover in the preparation of books, articles, and addresses.

PHYSICIANS' ACTIVITIES

Dr. James J. Hamilton, recently released from duty with the Navy, has begun practice in Wakeeney. He is a 1955 graduate of the University of Kansas School of Medicine.

Plans to reopen an office in Chetopa have been announced by **Dr. Elmer D. Peffly,** who practiced there before moving to Hoisington in 1958.

Dr. Clement C. Vickery, of the Hertzler Clinic, Halstead, recently became a diplomate of the American Board of Neurology and Psychiatry.

The Eastern Star in Jennings paid tribute to **Dr. L. Albert Jeffries** last month on the anniversary of his 50th year of membership in the order. He began practice in Jennings about 51 years ago and still maintains an office there.

Dr. James E. Chipps, Dr. Arthur W. Fegtly, and **Dr. Erastus S. Edgerton,** all of Wichita, were pictured in the *Wichita Eagle* recently when they became honorary members of the staff of St. Joseph Hospital there. Others receiving honor certificates are: **Dr. Clyde Beal** of Clearwater, **Dr. M. E. Brownell, Dr. Robert Howard, Dr. Robert H. Maxwell, Dr. C. D. Mills, Dr. Charles D. McKeown,** and **Dr. Harold O. Williams.**

Dr. Philip W. Morgan, Emporia, addressed the Kiwanis Club in Iola last month on the subject of heart disease and conducted a question and answer session afterward.

Dr. Robert E. Speirs and **Dr. E. Burke Scagnelli,** Dodge City, are two physicians serving with six business leaders on an advisory board for St. Anthony Hospital, Dodge City.

A Wakeeney physician, **Dr. Ray Stutzman,** recently entered military service and is taking basic training at Fort Sam Houston, Texas.

Dr. Andre Baude, Topeka, has been appointed to a committee on chest roentgenology by the American College of Chest Physicians.

Two anniversaries were celebrated by **Dr. Horace B. Vallette,** Beloit, recently. One marked the completion of 50 years in the practice of medicine and the second recognized his golden wedding anniversary.

Dr. Arthur P. Klotz, associate professor of medicine at the University of Kansas Medical Center, presented a paper, "The Effect of Ethionine and Bromobenzine Liver Damage on Diuresis in the Rat," at a recent meeting of the American Association for the Study of Liver Diseases in Chicago. He also spoke on "Peptic Ulcer" at a postgraduate program presented at Louisiana State University in New Orleans.

Dr. Karl Menninger, Topeka, addressed the staff and residents of St. Vincent's Hospital, New York City, recently and stopped in Chicago to speak on "Human Needs in Urban Society" at a meeting of the American Construction Industry Association.

Dr. Paul C. Laybourne, of the University of Kansas Medical Center, was speaker at the annual meeting of the Child Guidance Center in St. Joseph, Missouri, last month. He discussed psychiatric problems in children.

Dr. Donald W. Selzer, who formerly practiced at the Ball Clinic in Manhattan, recently completed four and a half years fellowship in surgery at the Mayo Clinic in Rochester, Minnesota, and is now practicing in Topeka in association with **Dr. Charles S. Joss.**

Plans to move from Claflin to Hoisington have been announced by **Dr. Robert Shaw,** who has been practicing in Claflin for four years.

Dr. Edward D. Greenwood, Topeka, president of the American Association for Children's Residential Centers, attended a meeting of the group in Chicago recently and served as leader of a discussion on residential trends.

A Kansas City physician, **Dr. C. Omer West,** was one of the speakers at a meeting of the Franklin County Teachers' Association in Ottawa on January 12. He told of his trip to Africa and showed pictures of the areas he visited.

Dr. Kenneth E. Bickford, who has practiced in Cherryvale during the past year, has moved to Wakeeney and has opened an office there.

A feature story about **Dr. C. C. Nesselrode,** Kansas City, was published in the January 4 issue of the *Kansas City Kansan.* The story reviewed Dr. Nesselrode's professional and civic accomplishments.

A physician from Paris, **Dr. Edmond de St. Felix,** has been appointed clinical director of Larned State Hospital, according to an announcement made recently by **Dr. J. T. Naramore,** superintendent.

Dr. Edward D. Greenwood, of the Menninger Foundation, Topeka, has been named by President Eisenhower as vice-chairman of the national committee for the 1960 White House Conference on Children and Youth.

A citation from the University of Kansas School of Medicine was presented recently to **Dr. John D. Hunter** of Fort Scott. Singled out as one of 240 Kansas physicians still in practice after 50 years of service, Dr. Hunter, who will complete 54 years of medicine in April, will have the privilege of attending all postgraduate courses offered by the school as a guest.

DEATH NOTICES

William S. Swart, M.D.

Dr. W. S. Swart, 83, who had practiced more than 50 years before his retirement a few years ago, died at his home in Girard on December 19. He was an active member of the Crawford County Medical Society. A graduate of Barnes Medical College, St. Louis, in 1899, he spent his entire professional life in Girard.

William Preston Sterrett, M.D.

A 100-year-old physician who was a charter member of the Wyandotte County Medical Society and had been an honorary member since 1936, Dr. W. P. Sterrett, died at Humansville, Missouri, on December 21. He began practice in Kansas City immedately after graduation from Ensworth Medical College, St. Joseph, Missouri, and moved to Humansville 24 years ago. During his days of practice he served also as a professor of internal medicine at the old Kansas City College of Physicians and Surgeons.

William Wallace Reed, M.D.

Dr. W. W. Reed, 78, an active member of the Shawnee County Medical Society, died at his home in Topeka on December 22. A graduate of Kansas Medical College, Topeka, in 1905, he began practice in Blue Rapids and moved to Topeka after serving in the Army Medical Corps during World War I.

He had served a term as president of the Shawnee County Medical Society and several terms as state supervising opthalmologist. He was a diplomate of the American Board of Otolaryngology, a fellow of the American College of Surgeons, and a member of the American Academy of Ophthalmology and Otolaryngology.

Edgar Sylvester Haworth, M.D.

A physician who had practiced in Wichita for 38 years, Dr. E. S. Haworth, 78, died at a Wichita hospital on January 9 after suffering a heart attack. A graduate of Southwest School of Medicine and Hospital, Kansas City, in 1907, he began practice in Viola and later moved to Wichita. He was a member of the Sedgwick County Medical Society.

Arthur Whitaker, M.D.

Dr. Arthur Whitaker, Atchison surgeon, died on January 14 after an illness of several months. He was 54 years of age. Dr. Whitaker received his education at the University of Kansas, completing medical school in 1930. He began practice in Nortonville on completion of internship in St. Louis and moved to Atchison several years later. He was an active member of the Atchison County Medical Society and had served a term as president of the group.

Dr. L. J. Ruzicka, Concordia, has submitted his resignation as city superintendent of public health.

Bethany Hospital, Kansas City, announces the appointment of **Dr. John E. Johnson** to its pathology staff. Dr. Johnson, who was recently elected coroner of Johnson County, has been on the staff at Research Hospital, Kansas City, Missouri, during the past six years.

Dr. Walter Stephenson, Norton, was recently appointed coroner of Norton County and took office on January 12.

"Toward the Solution of the Cancer Problem" was the subject discussed by **Dr. D. Cramer Reed,** Wichita, at a meeting of the Rotary Club there in December.

The *Newton Kansan* on January 12 paid tribute to **Dr. Frances Ann Allen,** of the Bethel Clinic, as Newton's "Woman of the Year" for 1958.

Dr. Kenneth J. Gleason, Independence, participated in a question and answer program at the January meeting of the Allen County Medical Assistants' Society in Iola.

A talk on cancer was given by **Dr. Marjorie Sirridge,** Kansas City, at a meeting of the Argentine Parent-Teacher Association on January 13.

Dr. Howard V. Bair, superintendent of the Parsons State Hospital, has been named one of three United States members of the program committee for the First International Congress for Retarded Children. The congress will be held in Portland, Maine, late in the summer of 1959.

Dr. George L. Thorpe, Wichita, is the author of an article, "Overweight? Try Eating," published in the January issue of *Woman's Day,* a national magazine of wide distribution.

Dr. H. D. Doubek, Belleville, was recently elected coroner of Republic County.

In 1957, 7,500 pedestrians were killed by autos in the United States.

COUNTY SOCIETIES

Dr. Robert Denton, assistant professor of research anesthesia at the University of Pennsylvania, was speaker at a meeting of the Sedgwick County Medical Society held in Wichita on January 6. His subject was "Practical Aspects of Inhalation Therapy in the Control of Respiratory Disorders." Dr. Norton L. Francis, president, and other officers elected several months ago were installed.

Officers of the Wyandotte County Medical Society for 1959, elected at a meeting held in Kansas City recently, are: president, Dr. Matthew R. Fitzpatrick; vice-president, Dr. William W. Abrams; secretary, Dr. Wray Enders; treasurer, Dr. Gretchen Guernsey; member of board of censors for three-year term, Dr. Lee E. Rook.

Dr. Howard Williams was speaker at a meeting of the Shawnee County Medical Society held in Topeka on January 5. His subject was "Sadistic Fathers."

Dr. Melvin L. Masterson was named president of the Miami County Medical Society at a meeting held in Paola late in December. Dr. Rex C. Stanley was named to serve as vice-president, and Dr. Robert E. Banks was chosen to become secretary-treasurer.

"Public Health Problems in Civil Defense" was the subject discussed by Lt. Col. Ingalls H. Simmons, M.C., of the Army Medical Service School, San Antonio, before the Wyandotte County Medical Society at a meeting held in Kansas City on January 20. A business session followed.

A meeting of the Anderson County Medical Society was held at the Bell Restaurant, Garnett, on January 12. Dr. Bert Harned, Kansas City, was guest speaker.

Two physicians from Oklahoma City, Dr. Edward R. Munnell and Dr. Charles Cathey, spoke on "Current Diagnostic Aids and Surgical Management of Heart Disease" at a meeting of the Cowley County Medical Society at the Winfield Country Club on January 15.

Members of the Saline County Medical Society were hosts at a meeting of the Golden Belt Medical

Society held at Holiday Inn, Salina, on January 8. Dr. Alfred R. Sugg, Ada, Oklahoma, was speaker at the scientific program.

At a recent meeting of the Republic County Medical Society, the following officers were elected: president, Dr. Paul L. Beiderwell; vice-president, Dr. Perry U. Hunsley, and secretary-treasurer, Dr. Herbert D. Doubek, all of Belleville.

ANNOUNCEMENTS

Fifteenth congress and graduate instructional course in allergy, sponsored by American College of Allergists, Mark Hopkins Hotel, San Francisco, March 15-20. Write the College, 2049 Broadway, Boulder, Colorado.

Annual meeting, American College of Obstetricians and Gynecologists, Atlantic City, April 6-8. Write the College, P. O. Box 749, Chicago.

Thirteenth general assembly, World Medical Association, Montreal, Canada, September 7-12, 1959. Canadian Medical Association, host. Write Secretary General, World Medical Association, 10 Columbus Circle, New York 19, New York.

Refresher course for medical librarians, sponsored by Medical Library Association, King Edward Sheraton Hotel, Toronto, Canada, June 13, 1959. Advance registration required. Write Wesley Draper, Chairman, 1313 Bedford Avenue, Brooklyn 16, New York.

American Board of Obstetrics and Gynecology announces August 1, 1959, as deadline for receipt of new and reopened applications for 1960 examinations. Write the Board, 2105 Adelbert Road, Cleveland 6, Ohio.

Thirteenth International Congress on Occupational Health, New York City, July 25-29, 1960, first such congress in United States. Scientific Program Committee invites submission of papers for presentation. Write Dr. Irving R. Tabershaw, 375 Park Avenue, New York City.

Awards of $500 and $300 for manuscripts offered by Division of Obstetrics and Gynecology, International College of Surgeons. Entries accepted from interns, residents, graduate students, and teachers in the specialty. Maximum of 5,000 words. Deadline June 1, 1959. Write Dr. Harvey A. Gollin, 55 East Washington Street, Chicago 2, Illinois.

New York University Postgraduate Medical School, 559 First Avenue, New York 16, New York, announces course in surgery of the hand, March 16-21; refresher course in allergy, March 23-25; seminar in internal medicine, April 6 through May 29.

Fourth annual meeting of Southwestern Society of Nuclear Medicine, Roosevelt Hotel, New Orleans, March 14-15. Write Dr. Samuel B. Nadler, 1520 Louisiana Avenue, New Orleans 15, Louisiana.

Postgraduate conference at Creighton University School of Medicine, Omaha, April 14-16, 1959. April 14 devoted to surgery, April 15 to obstetrics and gynecology, April 16 to both.

Award contest sponsored by American College of Gastroenterology announced. Entries accepted until June 1, 1959, by Research Committee, 33 West 60th Street, New York 23, New York. Essays on research in gastroenterology or allied field, clinical or basic science.

Appropriation for Heart Surgery Sought

The new Congress will be urged to approve as quickly as possible a supplemental appropriation of $1,500,000 to replenish funds for lifesaving heart surgery in children, Secretary of Health, Education, and Welfare Arthur S. Flemming announced today.

The high cost of surgery in children suffering from congenital heart conditions and increasing demands for such surgery have exhausted funds available to support state programs for the current fiscal year. The number of children with congenital heart disease who receive medical services under state crippled children's programs has increased from 2,200 in 1950 to 10,000 in 1957.

Under the overall state-federal medical care program for crippled children, states are required to provide one dollar for each two dollars provided by the federal government. If the proposed appropriation is approved, it would mean that there would be an additional $2,250,000 for treatment of heart defects in the young.

New surgical techniques, particularly "open heart" surgery, are too costly for most families to handle unaided. The immediate cost of the average open heart operation is about $2,500. This includes all hospital and medical care costs, diagnostic preparation, and the use of a number of expensive machines.

A.M.E.F. Contributions Increase

Contributions to the American Medical Educational Foundation in 1958, a total of $1,133,654, established new records, both in amount and in number of donors. The 15 per cent jump in income over 1957's total of $984,884 is certain to be matched by an equally large increase in the number of givers, although the final count of contributors is not, as yet, available.

The month of December also established a record for a 30-day period with over $540,000 being received.

Grants to medical schools of the nation were made at special ceremonies on February 9 during the Congress on Medical Education and Licensure.

Cancer Conference in Wichita

A theme, "Viruses and Chemotherapy in Cancer," has been chosen for the 11th annual Midwest Cancer Conference to be held at the Broadview Hotel, Wichita, March 26-27.

The program for the event is outlined as follows:

Thursday, March 26

Introduction ..... A. M. Cherner, M.D., Hays
Welcome ..... Larry E. Vin Zant, M.D., Wichita
The Natural History of Cancer ..... Stanley P. Reimann, M.D., Philadelphia
Ultramicroscopic Cell Structure and Its Relation to the Study of Cancer ... A. F. Howatson, Ph.D., Toronto
Clinicopathological Conference ..... John F. Christianson, M.D., Kansas City, Moderator
Ultramicroscopic Study of Viruses and Their Possible Relationship to Cancer ..... A. F. Howatson, Ph.D., Toronto
Studies on the Etiology of Human Leukemia ..... Clifton D. Howe, M.D., Houston
Current Concepts of the Etiology of Mouse Leukemia .... Charlotte Friend, Ph.D., New York City
The Treatment of Cancer in Children ..... Ian Macdonald, M.D., Los Angeles

Friday, March 27

Metabolic Disturbances in the Cancer Patient ..... Alfred Gellhorn, M.D., New York City
The Role of Endocrines in Human Neoplasm ..... Edward A. Gall, M.D., Cincinnati
Radiological Problems in Cancer Cases—Panel Discussion .... Karl A. Youngstrom, M.D., Kansas City, Moderator
Developments in Radiation for Cancer Treatment .... J. W. J. Carpender, M.D., Chicago
Management of Patient with Advanced Cancer ..... Ian Macdonald, M.D., Los Angeles
Biopsy Problems for the Practitioner—Panel Discussion ..... Francis A. Mantz, Jr., M.D., Kansas City, Moderator

Speaker for the dinner meeting on Thursday evening will be Sir Samuel Daniel of London, associate medical historican of the London Postgraduate Medical School. His subject will be "Some Intriguing Aspects of Medical Anthropology."

There will be a luncheon session each day. On Thursday Dr. Clifton D. Howe, Houston, will speak on "Annual Physical Examinations for Physicians," and on Friday there will be a "Curbstone Consultation" with all members of the faculty answering questions.

Kansans who will preside at the different sessions include: Dr. David S. Ruhe, Kansas City; Dr. Ralph Metcalf, El Dorado; Dr. Harvey Tretbar, Wichita; Dr. Leo Cawley, Wichita; Dr. George A. Westfall, Jr., Halstead; Dr. Newman C. Nash, Wichita; Dr. John F. Christianson, Kansas City, and Dr. Robert L. Obourn, Eureka.

Advertising or Charity?

The business and professional man is frequently called on the phone or receives though the mail a pitch to renew his advertisement in such-and-such a magazine or paper. The caller uses a familiar tone and mannerism. Possibly the firm may want to "go along with the boys" in putting out an issue in which they are going to fight Communism or anything else that all good citizens fight. If approached in this manner or any other type of solicitations, consider these questions:

1. Is it charity, or am I buying an ad?
2. If it is charity, should I support it?
3. How much of the donation goes to the promoter?
4. How much of the donation goes to charity?
5. Is the solicitor authorized, or will he pocket the money and skip?
6. If I am buying an advertisement, what is the circulation?
7. Is the circulation guaranteed? By whom?

—The Topekan
Topeka Chamber of Commerce
September 1958

A group of physicians, research executives, and a former director of the Budget Bureau has concluded that the nation should treble its expenditures for medical research and double its annual output of physicians, all in the next 12 years. The consultants' group to the Secretary of Health, Education, and Welfare proposes that the federal government supply about half a billion dollars by 1970, with an equal amount to come from industry and philanthropy. Head of the study group was Dr. Stanhope Bayne-Jones, former dean of the Yale medical school.

BOOK REVIEWS

Difficult Diagnosis—A Guide to the Interpretation of Obscure Illness. By H. J. Roberts, M.D. Published by W. B. Saunders Company, Philadelphia. 1958. 913 pages. Price $19.

What does this patient probably have? This question is always before practitioners, and the answer to it (with the focus on the "probably") suffices in the majority of instances. But lurking in the background is the physician's *bete noire,* the unusual diseases that the patient *may* have. Dr. Roberts has not presented us with an orthodox work on differential diagnosis, but, as indicated by its title, his book will throw light upon unusual and puzzling diagnostic problems.

Groupings of related diseases which frequently produce puzzling illness constitute Part I of the book, which includes 17 groups which cover virtually the entire scope of "medical" diseases. It would be tedious to enumerate the groups, and virtually impossible to give an indication of the scope and coverage of any single group. Suffice it to say that one will find a treasury of useful and interesting material on an amazing variety of topics. The section on cutaneous medicine includes an atlas of "systemic dermadromes" containing 100 photographs, many of which are in color. The increasingly important field of iatrogenic illnesses is covered from a refreshingly different point of view, the major emphasis being on things other than drug-induced illnesses.

Part II is a compilation and analysis of useful diagnostic procedures and makes readily available to the clinician a wealth of technical and clinical information concerning literally hundreds of diagnostic procedures—information which is, in general, available only with difficulty even to those who have a large library at their disposal.

Truly amazing reference bibliographies have been compiled. The emphasis is on articles that have appeared in standard American medical journals within the past ten years, but, when appropriate, older papers or ones appearing in foreign (usually British) journals have been cited.

Unlike most books that are valuable as reference manuals, this one makes absorbing reading, and it can confidently be predicted that its owners will enjoy reading it as an intellectually stimulating form of recreation. Every page is packed with interesting and important material. We are all familiar with variations on the theme of "the girl I would most like to be stranded on a South Sea island with," and I hereby enter my vote for Dr. Roberts' book as "the medical book I would like to be stranded in a vacation cottage with."—*J.D.R.*

Practical Leads to Puzzling Diagnoses. By Walter C. Alvarez, M.D. Published by J. B. Lippincott Company, Philadelphia. 490 pages. Price $9.00.

Despite the similarity of its title with that of the book reviewed above, Dr. Alvarez's contribution is in no way to be compared with it. In this book the author has abandoned for the moment his well-known hobby of "little strokes," and has concentrated his attention on the occurrence of psychiatric and psychosomatic illnesses in the "relatives" of the psychotic, the alcoholic, and the epileptic.

It is unpleasant and probably presumptuous to criticize an eminent elder physician, but in the interests of honesty it must be stated that the author has looked at only one side of the picture and that he has presented with tiresome repetition a theme that must be obvious to all perceptive physicians. After all, even third-year medical students are thoroughly familiar with the PPP syndrome!—*J.D.R.*

Preventive Medicine in World War II, Volume IV. Communicable Diseases. Medical Department, United States Army. Office of The Surgeon General, Department of the Army. Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., 544 pages. Price $5.50.

This volume was prepared and published under the direction of the Surgeon General, United States Army. It deals with communicable diseases transmitted chiefly through the respiratory and alimentary tracts.

It is well known from histories of wars that the communicable diseases of men and animals have inflicted great losses upon armies and related groups essential to a military effort. They have presented large and difficult problems. Military leaders have always been aware of the handicaps imposed by diseases among troops and of the need to protect troops against disability of sickness, or possibly loss by death, resulting from infectious diseases.

During World War II, the problems of the prevention and control of communicable diseases in the Army, and in the populations with which the Army was in contact, were of unprecedented complexity and magnitude. The prevention and control of communicable diseases constituted the major segment of the general mission of the Medical Department in securing and maintaining the health of the Army.

Although military preventive medicine has greatly broadened its scope, the control of communicable diseases continues to be the central activity. This volume indicates the magnitude of the communicable disease factor in United States Army operations in World War II and defines and characterizes the problems of communicable disease in military practice as

distinct from those of civilian life. It is recommended as reading for those who are interested in such definitions and characterizations.

Each chapter in the book was written by a different author. These authors were selected because of experience and distinction in their special fields. The book is divided into three parts. Part I is an introduction and covers general considerations of modes of transmission. Part II covers diseases transmitted chiefly through the respiratory tract. Here are considered the diseases caused by viruses, by bacteria, and by fungus. In Part III, covering diseases transmitted chiefly through the alimentary tract, one chapter considers diarrhea and dysentery. This is followed by chapters on food poisoning, bacterial infections, and parasitic infections.

This book, then, is a story of the activities of the Medical Department of the Army in dealing with problems of communicable disease control, together with some account of deficiencies and successes. Here can be learned lessons from the past, which, projected into the imminent future, impart both urgency and comprehensiveness to the Medical Department's program for the prevention and control of communicable diseases.—*E.V.T.*

Public Hunger for Medical News

A monumental nationwide study, sponsored by the national Association of Science Writers and supported by a grant from the Rockefeller Foundation, strongly indicates that the American public has a big appetite for science news, especially medical.

But the surprising conclusion is that because of space limitations all "mass media are transmitting only a microscopic part of the mountainous supply of science information potentially available to them."

The study is entitled: "The Public Impact of Science in the Mass Media." It was conducted by the Survey Research Center, Institute for Social Research, University of Michigan.

The preface of the 250-page study, just released, said that "the scientific journals of the world pour forth research papers at the rate of 20,000 a week. The science writer, as the middleman in the flow of communications, must select, condense and translate from this fantastic deluge of information those items he is to transmit to the lay audiences of the mass media. In economic terms, it is not supply but demand that is the problem in the transaction."

Much of the study, which deals with nine specific objectives, was concerned with medical news and the reading public.

The study revealed, for example:

—Medical reading is more prevalent among women than men.

—Medical reading increases with age, but there is a sudden drop in the group 65 and over.

—The west leads in the percentage who read all medicine, and the south and northeast trail.

—The science consumer (the reader or TV viewer) retains a lot of what he reads and hears.

—Medical stories center around the major diseases.

—Information that can be applied in everyday life is largely of the medical type.

—Almost one third of the newspaper audience want more science news, and almost one half want more medical news.

—The science consumer prefers to receive science and general news via the written media.

—Based on newspaper readers only, 41 per cent reported that they read all medicine and health news, 35 per cent said they read some, 13 per cent said they glanced at it, and only 10 per cent said they skipped over it.

Survey of Legal Profession

A survey of attorneys on various subjects of mutual interest to physicians and lawyers will be conducted early this fall by the American Medical Association's Law Department. Approximately 10,000 lawyers will be asked to answer questions on interprofessional relations, medical professional liability, and expert medical testimony.

The need for such a study is evidenced by the fact that as high as 80 per cent of all cases tried today require medical testimony and that seven out of 10 personal injury cases are decided on medical rather than legal considerations. The medical profession should be aware of the problems of attorneys and the role of medicine in the judicial system. It is the hope of the A.M.A. that this information can be used to promote good working relations between physicians and attorneys.

CLASSIFIED ADVERTISEMENTS

WANTED—General practitioner or internist to organize geriatric group in larger city. To start soon. Write the JOURNAL 12-58.

INTERNIST WANTED to establish private practice with group of private practitioners in large office building in fast-growing midwest city. Write the JOURNAL 2-59.

Wichita: Established general practice. Air conditioned building in excellent location, fully equipped. Building and equipment for sale or lease. Should gross $45,000 first year. Will introduce. Write the JOURNAL 15-58.

WANTED—G.P. surgeon with two years training to help with growing practice in rural community. New clinic building, north central Kansas. Write the JOURNAL 1-59.

The JOURNAL *of the*
KANSAS MEDICAL SOCIETY

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Volume LX MARCH, 1959 No. 3

The Medical Center

The Dean's Report on Personnel, Facilities, Budget, and Future Prospects at the School of Medicine

W. CLARKE WESCOE, M.D., Kansas City

It is a privilege to write a prefatory statement for the University of Kansas Medical Center issue of the JOURNAL OF THE KANSAS MEDICAL SOCIETY in this, the centennial year of the Society. The School of Medicine, in its own 54th year of existence, salutes the Society with whose interests it is indissolubly a part. The story of the past year and of the present one continues to be one of growth and progress. The salient features of that story follow.

Personnel. From the standpoint of faculty, there were few changes to be reported in the last year. This fact can be taken, we believe, as an estimate of the stability of the school.

On July 1, 1958, Dr. Donald C. Greaves joined the faculty as professor of psychiatry and chairman of the department. Dr. Greaves came to the school from the University of Oklahoma School of Medicine, where he had been associate professor of psychiatry since 1955. He is a graduate of Washington University School of Medicine and a graduate of the residency program in psychiatry of Cornell University. Dr. Greaves brings to this department dynamic leadership, and we look forward both to his growth and that of the department.

Similarly on July 1, Dr. Jack Walker, a graduate of this school with the class of 1953, joined the administrative staff in the position of administrative assistant to the dean. Dr. Walker had practiced medicine in Girard for several years. His return to the school resulted from his deep interest in medical education and his desire to become intimately concerned with it.

On September 1, Dr. Paul Lorhan resigned his position as professor of surgery (anesthesiology). He had served on this faculty for a period of 20 years. We regret his leaving for the sunny climes of California. The position of acting chief of the Anesthesiology Section in Surgery has been filled competently since that time by Dr. John M. Hansen.

Facilities. Since the last similar report was made, the Children's Rehabilitation Unit on the campus has been dedicated. It is now in full operation, under the direction of Dr. C. Arden Miller. This unit is a model, studied by many others, in the integration of education in several disciplines, in research, and in service to individuals as well as in service to the state.

In November 1958, the unit for radiology and radiotherapy was completed. This $125,000 structure allows for centralization of the radiology program in a manner that was not heretofore possible. It contains waiting areas that have long been needed. Perhaps of greatest interest to the Society membership is the installation of a cobalt therapy unit.

Architectural drawings are now in process for the remodeling of the third and fifth floors of the Hixon Building. The third floor, vacated by the Department of the History of Medicine when the library was completed in 1957, will be renovated to provide laboratories for the Department of Pharmacology. The fifth floor will be subjected to modernization.

It should be mentioned that at the present writing, and for the first time since 1948, there is no major construction in progress at the Medical Center.

Budget. This is being written, of course, at a time

when the legislature is in session and budget matters are pre-eminent. Our legislative requests show no great increase over last year's (approximately $95,000) and are actually under those of three years ago. A point of interest is that the Medical Center earns through direct income, gifts, and grants approximately two-thirds of its annual budget.

Future. We are now prepared to move forward with the construction of the science facility that will allow finally for the consolidation of the School of Medicine on one campus in Kansas City. This consolidation should have taken place 50 years ago. A federal grant of $850,000 has been approved. If the legislature acts to provide the matching funds, the dream will become a reality. If, on the other hand, the legislature fails to act, the federal funds will be lost and reality will become once more a dream. In this effort we cannot fail if we are to continue our status as an outstanding school.

As always, the relationships between School and Society continue to be the best possible. For the understanding support and encouragement of the Society we are extremely grateful.

Your comments on this issue of the JOURNAL will be appreciated. If you have suggestions for future issues, do not fail to let us hear from you.

Tetanus Prophylaxis

The Need for Better Understanding of Its Value

DON R. MILLER, M.D., ***Kansas City***

During informal conversation among a group of physicians at a recent postgraduate meeting, one doctor related the catastrophic events which followed an intradermal skin test of diluted tetanus antitoxin in a patient who had received minor injuries to the hand. By rapid institution of proper treatment, the life of the patient was saved.

Most physicians can recall similar personal instances of severe, sometimes lethal, reactions to tetanus antitoxin. Morbidity and mortality rates from tetanus infection are increasingly high. How relieved is the physician when the exposed patient says, "Yes, I have been immunized," and the decision whether to use tetanus antitoxin does not have to be made.

Active tetanus immunization, which may be acquired by receiving two injections of tetanus toxoid, has been enjoyed almost exclusively by two groups, the armed forces participants of World War II and later, and those immunized in infancy during the past few years. Few of the remaining adult population have been actively immunized or even know of the need or availability of this immunization. This lack of knowledge is based upon the lay person's difficulty in understanding the difference between active and passive immunity, and upon our failure to recommend the immunization to them.

The value of active immunization in the prevention of tetanus was most effectively demonstrated during World War II, when tetanus among U. S. armed forces was virtually absent. The incidence of tetanus in the U. S. Army during World War I, when antitoxin prophylaxis only was used, was 13.4 cases per 100,000 wounded. Comparable statistics during World War II, after the adoption of toxoid immunization, showed an incidence of only 0.44 cases per 100,000 wounded. Severe reactions to the toxoid injections are extremely rare.

The large number of accidental injuries occurring on farms and highways and around the home make universal active immunization against tetanus desirable. Patients should be urged to receive immunization at the time of yearly routine examinations. While little rapid protection is provided by the first toxoid injection in the unimmunized patient, there is no better time to start active immunization, in addition to passive immunization, than when the patient is seen in the hospital emergency room following possible tetanus exposure. At this time he will be most receptive to advice concerning the need for further protection against tetanus infection and possible serum reactions.

From the Department of Surgery, University of Kansas Medical Center.

Department of Surgery
University of Kansas Medical Center
39th and Rainbow
Kansas City 12, Kansas

Acid Base Balance

Study of Related Cellular Metabolic Considerations

SANTIAGO GRISOLIA, M.D.; LEWIS MOKRASCH, Ph.D., *and* HAROLD GRADY, Ph.D., *Kansas City*

The material presented here has evolved from seminar discussions conducted by one of us (S.G.) with the residents of the Department of Internal Medicine. These seminars are intended to refresh the physiological and biochemical background of the residents. We have attempted to simplify and integrate basic concepts and carry out rough calculations relating biochemical and physiological measurements and considerations. Unfortunately, the present generation of biochemists, busy with special problems, rarely thinks in physiological terms. Physiologists suffer from the same limitations, and in the meantime the language of their one-time offspring has become a language of its own.

Some extrapolations and speculations have been introduced, not because of their possible or true medical value, but to show the exciting possibilities of physiology and biochemistry to people burdened with immediate clinical problems. No attempt has been made to make a complete chapter nor to cover facets of respiration and of acid-base balance described already in many excellent publications. There is no bibliography, since an adequate bibliography would require as much space as the entire text.

Biochemical reactions underlying the phenomena of respiration, energy production, and regulation of pH are intimately interrelated. Comprehension of these reactions and particularly of their interrelationships will aid in the understanding of acid-base balance and of metabolism in general.

To emphasize the tremendous magnitude of the production and removal of hydrogen ion which is carried out by cellular respiration, consider the following example. If a person derived 2,200 Calories per day from glucose alone, this would correspond to the consumption of about 540 grams or 3 moles of glucose ($C_6H_{12}O_6$, molecular weight 180). Considering the hydrogen in the molecule, if in 180 grams glucose there are 12 grams (or 12 equivalents) of H, there will be 36 grams in the 540 grams of glucose, which must at some time exist as hydrogen ion. This would be equivalent to one liter of concentrated sulfuric acid.

The authors are from the Department of Medicine, University of Kansas Medical Center.

The over-all reaction for the oxidation of glucose is sometimes written as shown in Equation 1.

$$C_6H_{12}O_6 + 6O_2 = 6CO_2 + 6H_2O$$

It should be noted that the 6 moles of oxygen used balance the 6 moles of carbon dioxide produced and therefore the respiratory quotient, $\frac{CO_2 \text{ expired}}{O_2 \text{ inspired}}$, is 1.

Equation 1 is misleading for the present discussion. At first glance 12 hydrogen atoms per mole of glucose may at some time or other exist as hydrogen ions. During biological oxidations the hydrogen will be transferred to a series of coenzymes before its combination with oxygen to form water. This and other phenomena to be discussed in some detail indicate the magnitude of the task dependent on cellular respiration.

Acid-base balance is at once one of the most important and the most misunderstood areas of medical information. This article presents in concise, lucid form the foundation upon which an understanding of acid-base balance can be built. Although it will require collateral reading, mastery of this article will be a rewarding postgraduate experience for the reader. (Editor)

After oxidation of the substrates, the carbon appears as carbon dioxide which is carried as carbonic acid and bicarbonate in the blood which are in equilibrium according to Equation 2.

$$CO_2 + H_2O \rightleftharpoons H_2CO_3 \rightleftharpoons H^+ + HCO_3^-$$

When one mole of glucose is oxidized another 6 equivalents of H^+ appear from the hydration of 6 moles of CO_2 and its ionization, or from the oxidation of 540 grams of glucose, another 18 equivalents of H^+ are produced.

Since the blood and total extracellular fluid of an average man contain about 0.15 moles and 0.35 moles of "total CO_2" (CO_2 plus bicarbonate) respectively,

the daily production and removal of carbon dioxide represents about 100 times the CO_2 and bicarbonate in blood and about 50 times the bicarbonate and CO_2 present in the extracellular fluid, corresponding to turnover times of 15 and 30 minutes, respectively.

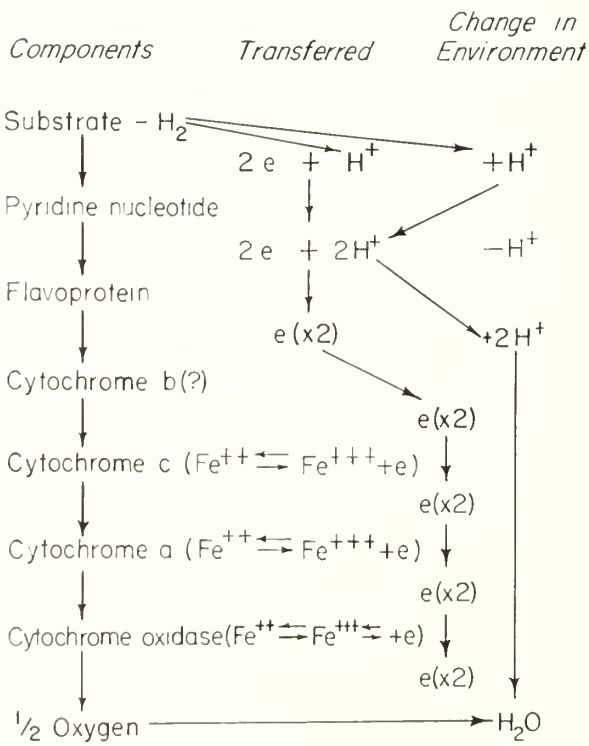
Having demonstrated that a large amount of H^+ is involved in metabolic transformations, to examine the matter in greater detail four related processes will be considered:

A. Cellular respiration—this process results in the removal of hydrogen atoms from substrates, with the formation of water and CO_2 and the regeneration of the terminal anhydride phosphate bond of adenosine triphosphate (ATP) which is the main source of usable chemical energy for the organism.

B. Buffer systems—with particular reference to the carbonic acid-bicarbonate system and to its respiratory regulation.

C. Nitrogen elimination—by this process amino nitrogen is converted into neutral urea. This process is intimately connected with Process A since it requires energy as adenosine triphosphate (ATP) and since the hydrogen ion liberated during deamination and ATP utilization is removed as water by cellular respiration.

D. Kidney "acid base valve." It cannot be over emphasized that with the exception of Process D, other processes are not able to produce a net change in acid or base, except for limited periods. Process A is potentially able to carry a large amount of hydrogen through the form of hydrogen ion to produce water, but it is a self-cancelling process. If this were not so, the whole organism would go into extreme acidosis or alkalosis. Process B is able to regulate the moderate changes in pH of a temporary nature. Finally, net prolonged change in amount of acid or base can be accomplished only by the kidney.



Sum: $AH_2 + \frac{1}{2}O_2 \rightarrow H_2O + A$ (+ ATP, usable energy for cellular work)

Figure 1

A. *Cellular respiration.* The purpose of cellular respiration is to produce energy in the form of ATP through the oxidation of substrates which come from ingested food. During breakdown of substrate the energy present is converted to biologically usable energy. For the most part, this process of conversion of energy occurs during oxidation resulting in the production of carbon dioxide and water. The scheme for these processes is shown below. Inspection of the scheme shows that the hydrogen ion liberated during these processes is completely converted to water. Assuming food (AH_2, substrate) to be oxidized to A (partially degraded substrate), reactions will occur as shown in Figure 1.

Thus no *net* change in hydrogen ion concentration occurs in the removal of hydrogen from the substrate. Wherever hydrogen or electron transfer occurs (Figure 1), the energy of these reactions may be used to put together inorganic phosphate and adenosine diphosphate (ADP) to form ATP. The above scheme accounts only for hydrogen of the substrate, but a related scheme will apply to the carbon chain oxidation of carbohydrates, fatty acids, and amino acids to CO_2. The amino acid nitrogen will be incorporated into urea as will be shown later.

Although the over-all mechanism of cellular respiration is well known, there is still lack of understanding of the intimate mechanism, particularly of the "combination" of hydrogen and oxygen at the cytochrome oxidase step. That is to say that although the mechanism of electron transfer to O_2 is unknown, the reaction

$$\tfrac{1}{2}O_2 \xrightarrow{+2e} O^{=} \xrightarrow{H_2O} 2OH^- \xrightarrow{2H^+} 2H_2O$$

could be incorporated in the above scheme.

During the formation of ATP from inorganic phosphate and ADP, at the expense of oxidation, hydrogen ion is removed from the medium, and during the hydrolysis of ATP, hydrogen ion is liberated as can be seen by inspection of the formulae in Figure 2.

It follows then that combination of inorganic phosphate (Pi) and ADP to give ATP results in alkalinization since H^+ disappears. The contrary will happen

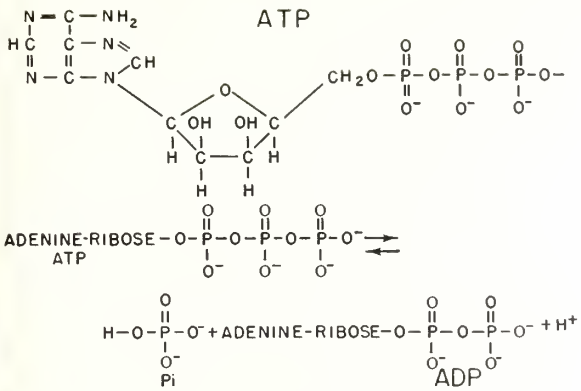


Figure 2

when the reverse reaction occurs since then H^+ appears. At pH 7.4 this results in a net change of around 0.5 acid equivalent per mole. Thus at a steady state (ATP formation equal to ATP breakdown—approximately 0.1 mole/min.) no change in hydrogen ion concentration occurs. However, this system is capable of either removal or addition of hydrogen ions to the system as a temporary dislocation of the "steady state."

Thus during the steady state for each mole of glucose oxidized to CO_2 and water with the production and utilization of energy as ATP, some 40 moles of hydrogen ion will be produced and used as follows:

1. 12 H (1 mole of glucose) + 10 DPN* + 2 oxid. flavin → 10 DPNH* + 2 reduced flavin + 10 H^+
2. 10 DPNH + 10 H^+ + 10 oxid. flavin → 10 reduc. flavin + 10 DPN
3. 12 reduced flavin + (6 O_2) → 24 H^+ + 12 oxid. flavin + (12 $O^=$)
4. 24 H^+ + 12 $O^=$ → 12 H_2O; or a net hydrogen ion production and utilization of at least 24 per mole of glucose
5. 6 CO_2 (1 glucose) + 6 H_2O → 6 HCO_3^- + 6 H^+
6. 1 glucose → about 40 ATP formed and used or about 20 moles of H^+ exchange at physiological pH. The addition and subtraction of H_2O during the metabolic transformations leading to total oxidation of glucose has been ignored, since it would add little to the present example.

An important store of immediately available energy is present as creatine phosphate. There is about ten times more creatine phosphate than ATP in tissues, and ATP is in equilibrium with creatine as shown in Figure 3.

At pH 7.4 liberation of hydrogen ion occurs when creatine phosphate is formed. This phenomenon has two important biological consequences:

First, the ATP-creatine phosphate equilibrium can serve as a donor or acceptor of H^+. For a 70 kg. man, assuming 40 per cent of his body weight as muscle containing 0.6 moles phosphocreatine, this capacity to accept hydrogen ions upon hydrolysis is about 300 milliequivalents (about 0.5 equivalent H^+ formed per mole of phosphocreatine hydrolyzed at neutral pH).

Second, in the absence of oxygen supply or when oxygen supply is insufficient (oxygen debt), one must draw from the creatine phosphate and glycogen stores for survival. Although the turnover number of cytochrome is sufficient to take care of all respiratory needs, a normal man has less than 70 micromoles of

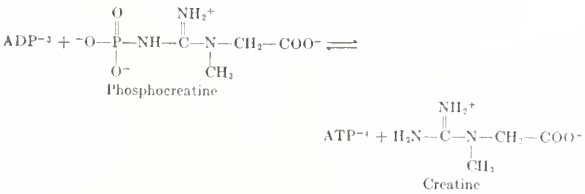


Figure 3

cytochrome in his body and this is of course of little storage value for energy production as oxidized cytochrome.*

The use of 2,200 Calories per day will be equivalent to the production and utilization of 100 moles of ATP (around 7,000 calories/mole) as high energy

* DPN is an abbreviation for diphosphopyridine nucleotide, and DPNH is the reduced form of DPN.

* In this regard it is of interest to consider that the amount of cytochrome C in the heart, brain, kidney, and muscle of a 70 kg. man is 92.7 mg. or about 7.8 micromoles. The basal oxygen uptake of these organs quoted by the same author is 174.8 ml. O_2 per minute or about 7.8 millimoles O_2; therefore, the turnover per minute in terms of electron transfer for cytochrome C in these organs is:

$$\frac{4 \times 7.8 \times 10^3}{7.8} = 4000$$

7.8 micromoles of cytochrome C will allow the uptake of 0.81 ml. of O_2 per minute as tested with kidney preparations. This figure should be corrected by a factor of 50 to 100, since endogenous cytochrome C is more effective or 81 ml. O_2 uptake per minute, still short by a factor of 2 from the figure 174.8. From other figures in the literature, 1 micromole of cytochrome C can catalyze the uptake of 1400 micromoles O_2 per minute or 7.8 × 1400 = 10.8 millimoles O_2 or 243 ml. O_2 per minute. From these figures, albeit only tentative for calculations of true rates in vivo, one is left with the impression that cytochrome C is operating near capacity in certain organs. To our knowledge, there are not recorded increases of metabolic rates of over 2 taking into consideration that the "basal" metabolic rates are probably over the "base line" by a certain percentage. One is led to speculate that extreme increases in respiratory rates during violent exercise may be primarily needed to aid in the mechanical removal of CO_2.

phosphate (assuming 30 per cent efficiency), and this will be roughly equivalent to the utilization and production of 0.1 mole ATP per minute. In the absence of respiration and of the regeneration system for chemical energy, one could draw on the creatine phosphate stores (0.6 mole) and survive for only about five minutes without respiration. Of course irreversible damage to the brain would occur before the critical point for survival was passed for the remainder of the body.

B. Obviously, the regulation of the pH of the blood and other fluids is the resultant of the mixed buffer systems but mostly, except for proteins, due to the phosphate and bicarbonate buffers. Teleologically speaking, this is not surprising because, as indicated before, the bulk of metabolism depends upon the conversion of metabolites to CO_2 and H_2O via phosphorylated intermediates. The phosphates are in equilibrium with the ADP-ATP phosphocreatine system. Metabolic CO_2, which is essentially a waste product in the animal, partakes in the regulation of pH by means of the gross respiratory regulation of the carbonic acid concentration. Although this system may compensate for small changes in pH, it cannot result in a continuous removal of H^+.

Consider again Equation 2:

$$CO_2 + H_2O \rightleftarrows H_2CO_3 \rightleftarrows H^+ + HCO_3^-$$

An increase in hydrogen ion concentration causes increased respiratory removal of CO_2 which reduces carbonic acid and hydrogen ion concentration. However, this is limited by the fact that bicarbonate can be made only by the reversal of the above reaction, producing as much hydrogen ion as is removed. The net effect cannot be more than the total bicarbonate in the body fluids (20 to 25 mEq./L of extracellular body fluids), and this is only a small fraction of daily CO_2 production and excretion.

The increase in bicarbonate in the red cell due to carbonic anhydrase with the resultant chloride shift results in the transfer of water into the red cell. It is of pedagogic interest to remember that a small part of this change is necessarily due to the fact that some of the water is used to make carbonic acid from CO_2.

C. A further example of potential removal or addition of hydrogen ions occurs in glutamine metabolism. Glutamine is synthesized as shown in Figure 4.

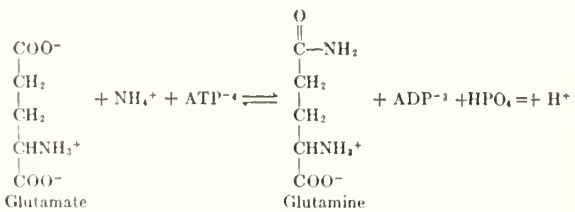


Figure 4

This reaction occurs mainly in the liver and in the brain. When glutamine is used in the kidney, results occur as indicated in Figure 5.

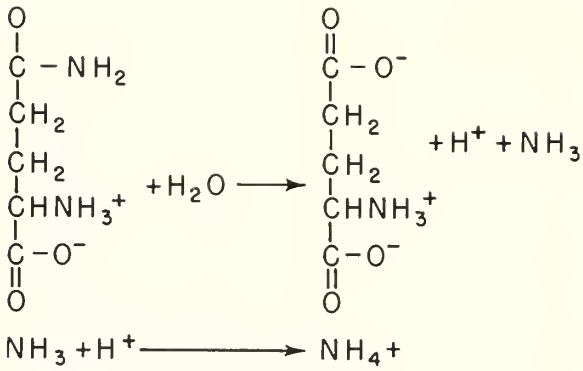


Figure 5

The increase in hydrogen ion in the reaction is balanced by the disappearance of one hydrogen ion in the conversion of ADP and inorganic phosphate to ATP (Figure 2). Thus the over-all effect is the utilization of the energy of ATP to transport ammonia (as glutamine) from the liver, the major site of ammonia production and urea synthesis, to the kidney where the released ammonia can carry one hydrogen ion out into the urine.

The liver is the major site of urea production. All amino acids with the exception of lysine are in a steady state of interconversion, due to the abundance of transaminases. There are, however, only two quantitatively important ways known by which amino nitrogen can be transformed into urea, first, as free ammonia from glutamic acid through the action of glutamic dehydrogenase, and second, as aspartic acid as in Figures 6 and 7.

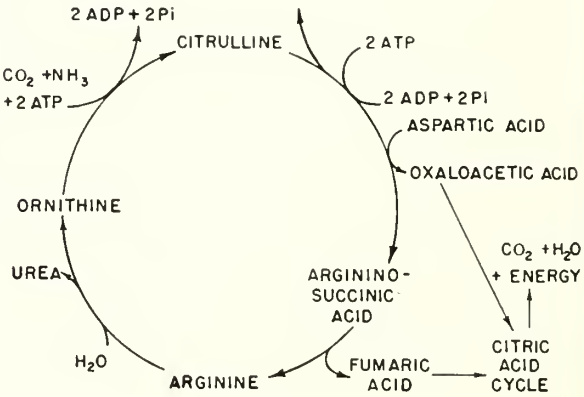


Figure 6

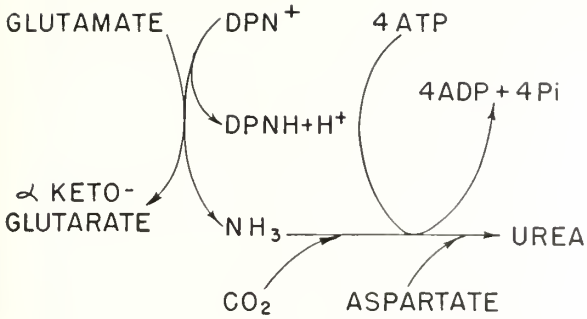


Figure 7

In the above scheme, by the action of glutamic dehydrogenase, ammonia is liberated from glutamate to yield one of the nitrogens of urea, and during this process an equivalent of hydrogen ion is formed as follows:

DPN^+ + glutamate $\rightarrow NH_4^+ + DPNH + H^+$ + α-ketoglutarate

The H^+ liberation during urea formation can also be seen in this simple equation:

$$2NH_4^+ + H_2CO_3 = NH_2 - \overset{O}{\underset{C}{|}} - NH_2 + 2H^+ + 2H_2O$$

Therefore, assuming an average of 30 grams (0.5 mole) of urea formed per day, twice an equivalent amount of hydrogen *(1,000 milliequivalents)* is removed by the respiratory process as H_2O together with the 1,000 milliequivalents of H^+ produced by the utilization of 2 moles of ATP at pH 7.4 during this process. On the other hand, the normal 24-hour excretion of hydrogen ion plus ammonia by the kidney is only 50-70 mEq. The example emphasizes the importance of the respiratory chain in removing hydrogen ion production during metabolic processes. In severe acidosis (diabetes) this can increase up to 500-700 mEq. of hydrogen ion per 24 hours. However, only part of this maximal response can occur rapidly. That part of hydrogen ion removal mediated through ammonium ion formation requires 48 hours or longer to establish its maximum rate. It is of interest to speculate that this lag may be related to the time required to establish glutamine synthesis, for example, at its highest rate. Thus the immediately available hydrogen ion excretion (to correct a suddenly developing acidosis) is about 150 mEq. per 24 hours while the 350 mEq. of hydrogen ion per 24 hours removed as ammonia is not available for at least 12 hours.

The actual process of hydrogen ion removal by ammonia formation is not known, but it is generally believed that ammonia itself diffuses from the tubular cell into the tubular urine and then combines with hydrogen ions to form ammonium ions. This lowers the hydrogen ion concentration of tubular urine and thus permits exchange of tubular sodium ions for more tubular-cell hydrogen ions. The latter process is, of course, the urine acidification process that is immediately responsive to an increase in the blood pH.

From the above considerations, it is clear that the only efficient therapeutic manner for correcting extreme changes in hydrogen ion concentration is by the addition of either base or acid or substrates which by metabolic processes can result in alkalinization or acidification, for example, by the administration of sodium lactate and ammonium chloride respectively.

Summary

Classical considerations of problems of acid-base balance have ignored the extremely large donation and removal of hydrogen ion resulting from the reactions involving the utilization of food to produce energy. Simple calculations show that this production of hydrogen ion, which must be exactly balanced by processes of removal, is as much as 150 equivalents per day compared to a maximum removal by the renal mechanism of 0.5 equivalents per day.

All hydrogen on substrate molecules, as well as an equal quantity of hydrogen from water, appears as hydrogen ion in one stage of its transport to oxygen to form water. The energy produced by these reactions is stored primarily in two compounds (ATP and creatine phosphate) which in this interconversion can, if imbalance occurs, cause a large excess or deficit of hydrogen ion, particularly at the cellular level.

The systems for hydrogen ion regulation, in addition to the delicate balance of production and removal mentioned above, are the renal, respiratory, and the body buffer systems. Proteins, bicarbonate, and phosphate are the most important buffers, although bicarbonate is especially effective because of its regulation by the respiratory system. The renal mechanism depends upon tubular hydrogen ion excretion or absorption either directly or through ammonia formation from glutamine. The liver thus participates in regulation of hydrogen ion concentration by glutamine synthesis.

Both the buffers and the respiratory system have severe limitations with respect to compensation for a prolonged and progressive increase or decrease in hydrogen ion concentration. Only the renal mechanism with ammonia production at maximum can combat large changes in hydrogen ion concentration.

We wish to thank our colleagues, Doctors George Curran, E. G. Dimond, Daniel Darrow, Paul Schloerb and Gerhard Plaut, for reading the manuscript and offering comments and suggestions.

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Carcinoma of the Cervix

Study of Diagnosis and Treatment in 1,000 Patients in 28-Year Period

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From September 1929 to September 1957, 1,000 patients with carcinoma of the cervix were treated by members of the Obstetrics and Gynecology Department at the University of Kansas Medical Center. This is not an imposing number, but most cases were referred by Kansas physicians and, therefore, represent a diagnostic performance by Kansas practitioners. In addition, all became the responsibility of our treatment facilities at the Medical Center, so a report to the Kansas profession seems in order.

This report will be in two parts. First we would like to point out a marked improvement in the profession's attitude toward carcinoma in general and toward carcinoma of the cervix in particular. This change, with some improvement in diagnostic methods, has led to much earlier diagnoses. Secondly, we would point out that treatment facilities at the Medical Center have also improved with startling increases in good end results.

The first 500 of these patients were treated between September 1929 and September 1943. The second 500 were seen between September 1943 and September 1957. The dividing line (September 1943) was chosen, not only because it divided the material equally, but also because (a) the change in professional attitude occurred about then and (b) the Medical Center acquired better external radiation apparatus and techniques at about the same time.

It is well established that carcinoma anywhere in the body can be cured only if (1) a sufficiently early diagnosis is made and (2) proper therapy is promptly instituted. That much earlier diagnosis was made in the second half of this period is amply demonstrated in Table I.

It is remarkable that not a single early (stage I) patient reached us in the first four years of this period and that our first such patient was erroneously diagnosed as an advanced case. Almost every patient today is correctly diagnosed as to extent of the lesion and is sent to us with reasonable dispatch. That two-thirds of the first group were hopeless, or nearly so, and that this percentage has decreased to 45 is a tremendous tribute to the Kansas profession.

TABLE I

	Sept. 1929-Sept. 1943		*Sept. 1943-Sept. 1957*	
	Number	*Per Cent*	*Number*	*Per Cent*
Stage I	35	7	112	22
Stage II	133	27	164	33
Stage III	214	43	131	26
Stage IV	118	23	93	19
Total	500	100	500	100

Earlier diagnosis and improved facilities for treatment of carcinoma of the cervix are reflected in a comparison of statistics in 500 patients seen before September 1943 with 500 patients seen after that date. Additional comparisons will be made in 1962 when patients in the latter group will have passed the five-year mark.

There has been a remarkable change, in 30 years, from the attitude that carcinoma is a hopeless situation and that treatment is therefore useless. Improved methods of early diagnosis are now also playing an increasingly important role. The Papanicolaou smear has helped, but more important has been the more frequent use of biopsy. To be conscious of the possibility of carcinoma, even in the young patient, will always remain, however, the most important factor.

It is obvious that the efforts of the Kansas Division of the American Cancer Society have markedly reduced delay in patient treatment and have instilled a considerable hope of cure in these individuals. That some cancer phobia has resulted is not too great a price to pay. Sufficiently careful and complete examinations will allay the fears of nearly all these people. A single negative Papanicolaou smear will never suffice for this purpose. That more public education and still more cancer consciousness on the part of the physician are necessary is evidenced by the fact that nearly half of the patients in the second half of this study did not reach us until their chances for cure were all but gone.

It has been our policy, throughout this period, to treat all patients with radium and x-ray. A few, too small a number to affect over-all results, have errone-

ously been treated otherwise. Our plan of radium therapy has been constant. The choice of applicator, bomb, or interstitial use of the element, the calculation of dosage, and the timing thereof have always been carefully selected according to the stage of the disease, the age of the patient, and the amount of associated inflammation or other complicating factor. It has been our belief that overdosage is quite as wrong as under dosage. X-ray therapy, on the other hand, has been greatly improved in the second half of the study, and the great improvement in results shown in Table II should be credited to improved x-ray therapy.

In the earlier part of this study only a low voltage x-ray apparatus was available and dosage was, for the most part, kept low to avoid gross normal tissue damage. In the latter series, more nearly adequate dosage was possible with higher voltage apparatus. With the newly acquired Cobalt bomb machine, it should be possible to still further reduce normal tissue damage and, perhaps, still further improve the "cure" rate. The five-year salvage shown in Table II is so superior to the results from even the best surgery, anywhere in the world, that in our opinion it is proper to condemn surgery as the primary treatment in carcinoma of the cervix. In the small percentage of radiation failures, surgery should be used in properly selected patients.

TABLE II

	Sept. 1929-Sept. 1943		*Sept. 1943-Sept. 1957*	
	Number	*5-yr. Salvage*	*Number*	*5-yr. Salvage*
Stage I	35	66%	69	88%
Stage II	133	49%	113	57%
Stage III	214	28%	111	33%
Stage IV	118	2%	66	8%
Total	500	30%	359	47%

It is planned to present a further report when all of the second 500 patients have passed the five-year mark (1962) and, perhaps then, include figures as to 10- and 15-year salvage (all of our patients are being followed 15 years). Although it has been a big undertaking, we have consistently worked toward a complete 15-year record. Three of the first 500 patients have been lost to follow-up and have therefore been counted dead, but, so far, the present status of all of the second 500 is known.

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If the source of our strength lies within ourselves, there too is the area of potential weakness. I do not believe we can be defeated by any foreign foe but I believe it is possible for us to defeat ourselves. It is possible for us to lose by default if we are betrayed by false hopes, if we are paralyzed by apathy, indifference and overconfidence, if we are blind to the lessons paid for in blood by earlier generations of free men.

To keep self-government healthy, to make maximum use of the mechanisms held in our own hands we must see that local governments do their jobs in full. So urgent are the requirements of modern society that what the town or city will not do, the the state must do; and what the state will not do, the national government must do. But when the larger unit takes over the functions of the smaller one, costs steadily mount, popular control progressively weakens, exterior power constantly increases. The solution of the critical dilemmas confronting us lies in community acceptance of responsibilities which the community now tends to evade.

Through this means, and this means alone, can we assure the preservation of our basic liberties, our traditions, our free-enterprise system based on individual merit and effort, equality of opportunity and open competition. Through this means, and this means alone, can we assure the maintenance of a national government that is sound in its principles, enlightened in its administration, conscious of its supreme responsibilities and dedicated to the cause of free men.

—*Robert Montgomery*

Orabilex

Evaluation of a New Cholecystographic Medium

GALEN M. TICE, M.D., *Kansas City*

It is our impression, from a study of 152 cases during a seven-month period terminating December 15, that Orabilex is a satisfactory medium for examination of the gallbladder. It produces a relatively small number of side effects; visualization is excellent regardless of the patient's size, and re-examination is seldom required. The technique is simple. It varies in no respect from that which has customarily been used for other media. There is an absence in most instances of confusing gastrointestinal shadows.

The clinician is often confronted with a patient in whom a differential diagnosis must be made as to the cause of abdominal or thoracic pain. Especially is this true if the distress is in the right upper quadrant. Under these circumstances a study of the biliary tract is of inestimable value.

Prior to 1924, many workers reported observations of roentgenological evidence of gallstones from routine examinations. Only radiopaque stones could be diagnosed. In 1924 Graham[1] and his co-workers developed a medium which, when injected intravenously, made possible visualization of the biliary tract. This opened a new field for x-ray diagnosis. Soon after this a medium was designed for oral administration.

Our first experience with x-ray examination of the gallbladder, starting in 1930, was with the original medium, tetraiodophenolphthalein. Nausea and vomiting usually accompanied the oral administration of this substance, and in our experience rather severe reactions occurred following its use by the intravenous route. In the interval since then various products have been made available by pharmaceutical houses for oral use, and each has shown some improvement over previous oral preparations. We occasionally use a refined type of intravenous preparation, particularly if it is important to visualize the ducts in the postoperative patient whose gallbladder has been removed. Most gallbladder studies, however, are done with oral material.

During recent months it has been our privilege to use a new medium, Orabilex, which has only recently been placed on the market. Orabilex, a development of the Guerbet Laboratories available now through the Fougera Company, is a brand of bunamiodyl. It is described as 3(3-butyrylamino-2,4,6-triiodophenyl)-2-ethyl sodium acrylate. Orabilex has a molecular weight of 661; is a white, odorless, slightly hydroscopic powder which contains 57 per cent of iodine, and it is somewhat soluble in water and alcohol. It is stable under normal conditions with heat and light but should not be exposed to strong light.

The toxicity of Orabilex has been thoroughly tested. Intravenous injection of 200 mg. per kg. produced no observable discomfort or reaction in rabbits; the same dose produced no apparent discomfort in cats.[2] The LD-50 in rats after intragastric administration was found to be 2.2 Gm/Kg body

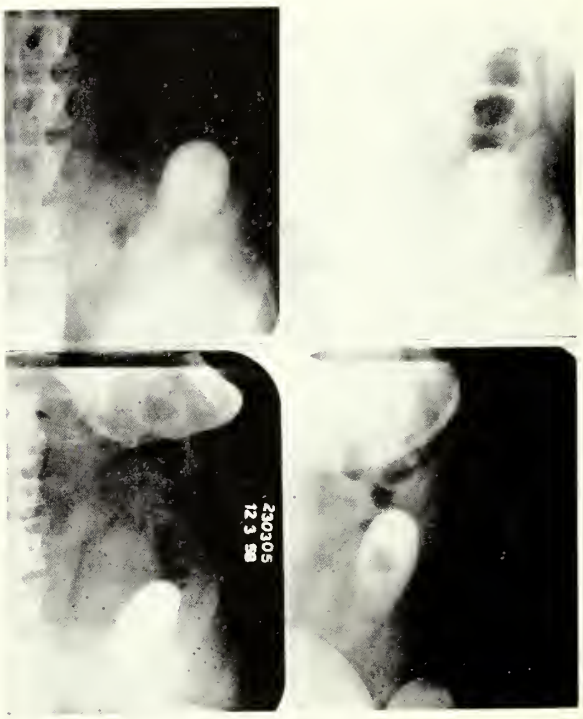

Figure 1. Films of four different patients of average weight show gallbladder shadow to be expected after ingestion of the recommended six tablets of Orabilex.

weight.[3] In tests on dogs with daily oral doses to the amount of 1.5 Gm/Kg, Orabilex powder did not seem to affect the general activity of the animals. At the end of two weeks kidney and liver function tests were normal and the animals were killed. Gross examination of all organs showed no damage of any type, nor was any damage seen on histological study of the kidney, spleen, duodenum, thyroid, and liver.[3]

Having been satisfied that the substance was nontoxic in animals, we used it in studying a series of patients. On May 14, 1958, we started a clinical trial of Orabilex. From that date until December 15, a period of seven months, we gave the substance to 152 individuals on an outpatient basis. We have been impressed by the lack of serious toxicity, good visualization of the gallbladder, uniformity of the dose delivered to the patient regardless of weight, and lack of excess opaque material scattered over the x-ray film in the gastrointestinal tract.

The reaction of the patient to the opaque medium was evaluated by the office secretary when the patient reported for films. Undoubtedly the personal equation entered into this evaluation. Listed in Table I are the types of reaction and the percentage who had the reaction as determined by this evaluation.

It is seen in this study that there was a moderate degree of nausea. Personally we were not impressed with the fact that any patient suffered a great deal from the various symptoms listed. One person complained of numbness in the arms and feet and a rapid heart rate. It would be hard for us to correlate this with the medication taken.

TABLE I

Nausea	17 %
Vomiting	3 %
Diarrhea	2 %
Headache	6 %
Skin rash, one patient	.7%
Intestinal cramps	1.4%
Indigestion	1.4%

Figure 2. Concentration of Orabilex in a patient weighing 225 pounds.

In using other opaque media, we customarily have given double the dose recommended by the pharmaceutical house supplying the medium. This procedure has developed over several years experience in which we found that the shadow was faint if we used the routine dose recommended. Consequently, as a matter of protecting ourselves and saving the patient a repeat trip, twice the original amount has been used.

With Orabilex, we have found that adequate visualization is produced in all adult patients, regardless of weight, by using the recommended dose. In only two of our patients did we increase the dose. In one patient there was a non-functioning gallbladder which did not function with the increased dose. In the other there was rather faint concentration which was not appreciably increased by using nine instead of six tablets. We found that even with patients weighing over 200 pounds the dose recommended for Orabilex was adequate (Figure 2).

In Table II we have shown the degree of concentration in the functioning cases:

TABLE II

Degree of Concentration	*Number*	*Per Cent*
Poor	5	3
Fair	23	18
Good	54	39
Excellent	55	40

We found good or excellent function in 79 per cent of the cases and poor function in only 3 per cent of the cases.

It has been suggested by other investigators that the duct system is better visualized with Orabilex than with other media. We are not prepared to form

an opinion. We do not customarily give the patient a cholagogue after gallbladder visualization, but when it was done we did see duct visualization approximately as frequently as with other media.

We have listed in Table III the results of our examination. It is doubtful if this has any relationship to the type of medium used. There was high visualization, almost 90 per cent. This, we suspect, relates to the type of patient selected rather than to the medium used in the examination.

We were impressed with the fact that in three cases in which the gallbladder showed no evidence of function when Orabilex was given, the intravenous preparation was injected and still no function was demonstrated. We feel that if oral preparations are used for gallbladder visualization and there is no evidence of function, the patient should not have surgery until an intravenous medium has been used.

TABLE III

Result of Examination	*Number of Cases*	*Per Cent*
Non-Visualization	16	10.5
Visualization	137	89.5
Stones	27	18
No stones	126	82
Opaque stones	8	30
Non-opaque stones	19	70

Figure 3. Film of abdomen showing no spillover of the opaque medium into the gastrointestinal tract.

Figure 4. Left film shows floating stones with translucent line across the middle of the gallbladder. Right film shows "negative stones" or cholesterol stones.

One of the outstanding points in the use of Orabilex as compared to other media is the lack of dissemination of the medium through the intestinal tract. Our routine technique does not always include an abdomen film after the opaque medium has been given, although we occasionally take a film prior to the ingestion of the material. In this series there were 118 patients, however, who had abdomen films as part of the examination. Of this number ten showed minimal opaque material in the intestinal tract (8 per cent), and two showed moderate amounts of the opaque substance (2 per cent). Ninety per cent of the cases followed showed no dissemination of the medium in the gut. This we consider a distinct advantage since opaque substance in the gut occasionally overlies the gallbladder, presenting disturbing shadows. This is explained by the developer of this medium as due to the fact that Orabilex is eliminated largely through the urinary tract, in contrast to the predominately intestinal excretion of other media. None of our patients complained of dysuria as a result of this elimination.

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Electrocardiograms of Weight-Lifters

Study of Findings in 26 Subjects

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E. GREY DIMOND, M.D., *Kansas City*

The search for knowledge in the field of electrocardiography has led the modern cardiologist to explore the electrocardiographic findings of all forms of vertebrates from the parakeet to the whale. Electrocardiographic findings in various occupational and athletic groups have been recorded. Although the electrocardiographic findings of weight-lifters are not as awesome as those of the whale, certain valuable information might be derived from a study of this group.

This study was supported in part by grants from the Kansas Heart Association and from the National Heart Institute. Mr. Etzenhouser is a senior student at the University of Kansas School of Medicine, Dr. Dunn is an instructor in the Department of Medicine, and Dr. Dimond is director of the Cardiovascular Laboratory.

Figure 1. One of the weight-lifters used in this study.

The weight-lifter presents features which make him interesting to the cardiologist. He is one example of a highly conditioned athlete in whom the demands on the cardiovascular system have been just the opposite of the usual requirements of physical fitness. Practically all other physical fitness sports require sustained demands on cardiac output by increasing stroke volume and heart rate. The weight-lifter, by the unusual nature of his effort, does immense physical work while performing a Valsalva maneuver. Therefore, in practice, the weight-lifter impedes venous return, decreases cardiac filling, and decreases cardiac output at the same moment he exerts maximal effort. A documentation of the electrocardiogram at rest and after exercise in weight-lifters is not available in the literature. For these reasons we undertook a study of the electrocardiographic findings of weight-lifters.

Electrocardiograms were studied at rest and after exercise in 26 weight-lifters. A description of the tests and findings is presented.

Method

The study consisted of 26 male weight-lifters (Figure 1), ranging from 16 to 40 years of age. These men had been weight-lifting from 4 months to 10 years for 1½ to 20 hours per week. One of the men in the series was a Missouri Valley light-weight champion and another was a National AAU middle-weight champion.

Preliminary examination consisted of obtaining a medical history, weight-lifting history, blood pressure, and auscultation of the heart. A standard 12 lead electrocardiogram was then taken on each subject. Each subject then completed 50 trips over the standard Master's two steps in three minutes. Immediately after exercise, Leads I, II, III, V_4, V_5, and V_6 were taken and repeated at 2-, 4- and 6-minute intervals thereafter. Most of the records were obtained at physical fitness salons, and some unexpected technical problems were encountered.

Results

The results of this study are shown in tabular form in Figure 2.

Arrhythmia. The heart rate was not unusual in any subject, either before or after exercise. One subject, who had an occasional atrial premature contraction at rest, developed a marked arrhythmia after exercise with sinus pause, multiple ventricular premature contractions, multiple atrial prematurities with runs of atrial prematurities, and nodal prematurities (Figure 3). No other subject developed significant arrhythmia.

P Waves. One subject had broad notched P waves and two showed abnormal peaking of P waves. The P-R interval was normal in all subjects.

QRS Complex. Prolongation of the QRS complex was not present in any subject. No abnormal deviation of the electrical axis was found. One subject had an $S_1S_2S_3$ pattern. Five subjects met one of Sokolow and Lyon's criteria for left ventricular hypertrophy,[11] in that the sum of the S wave in V_1 and the R wave in V_6 was greater than 36 mm.; but their tracings did not show other criteria for this diagnosis.

QT_c and RST-T. The QT_c interval[8] was prolonged

EM Ejection murmur
3S Third heart sound
P Peaked P wave
$S_1S_2S_3$ $S_1S_2S_3$ pattern
LVH Left ventricular hypertrophy
RR′ RR prime pattern
† Terminal depression of the ST segment in V_4, V_5, V_6 after exercise
‡ Inverted T waves in Leads II and III before exercise
+ U wave present
* Multiple atrial, nodal, and ventricular prematurities
SA Sinus arrhythmia

Patient	*Age*	*Years-Training*	*Hours/Week Training*	*Weight*	*Blood Pressure*	*Auscultation*	*Heart Rate*	*P-Wave*	*PR Interval*	*QT_c Interval*	*QRS*	*R-ST*	*U-Wave*	*Arrhythmia*
1	16	1	3	175	120/80	EM	100	P	0.12	0.45	—	†	+	—
2	26	1	9	175	130/70	—	92	—	0.18	0.39	—	—	—	—
3	20	2½	9		150/80	3S	83	—	0.14	0.39	—	—	+	*
4	21	2½	6		140/80	—	77	—	0.14	0.39	$S_1S_2S_3$	—	+	—
5	24	11	3	123	115/70	—	100	P	0.16	0.38	—	—	+	SA
6	23	6	3½		125/75	—	62	—	0.16	0.40	LVH	—	+	SA
7	19	4	5½	160	130/80	—	89	—	0.12	0.39	—	—	—	SA
8	27	1½	5	160	140/100	—	89	—	0.18	0.42	—	‡	—	—
9	25	3½	5	189	120/80	—	100	—	0.16	0.45	—	—	—	—
10	40	10	20	190	150/110	—	83	—	0.20	0.40	—	—	+	—
11	22	1½	1½	175	130/90	—	91	—	0.14	0.41	—	—	—	—
12	23	1½	6	180	140/80	—	105	—	0.12	0.43	—	—	—	—
13	35	20	1½	210	150/100	—	107	—	0.12	0.42	—	—	—	SA
14	28	2	3	175	130/95	—	100	—	0.14	0.40	LVH	—	—	—
15	23	1	7½	175	130/80	—		P	0.12	0.46	LVH	—	—	—
16	39	20	1½	185	150/80	—	85	—	0.16	0.38	—	—	+	SA
17	21	6	12	180	120/90	—	107	—	0.12	0.36	—	—	+	SA
18	23	5	6	185	150/75	—	89	—	0.14	0.43	—	—	+	SA
19	18	4m	8	170	125/85	—	85	—	0.14	0.36	Rtaxis LVH	—	+	SA
20	21	3	8	190	130/80	—	111	—	0.18	0.41	—	—	—	—
21	20	9	9	170	130/90	—	79	—	0.14	0.40	LVH	—	+	SA
22	23	3½	6	205	160/80	—	93	—	0.14	0.42	—	—	+	SA
23	36	2	6	165	145/90	—	92	—	0.16	0.40	—	—	+	—
24	29	6	4	170	140/80	—	100	—	0.14	0.40	—	—	—	—
25	38	6	5	147	120/85	—	83	—	0.14	0.39	RR[1]	—	—	SA
26	28	10	6	160	130/80	—	100	—	0.14	0.37	—	—	—	—

Figure 2

in 10 subjects. One subject had inverted T waves in II, III, aVf, V_5, and V_6 at rest. Immediately after exercise, the T waves became upright in II and III and then inverted again 4 and 6 minutes after exercise (Figure 4). Another subject had terminal ST segment depression and biphasic T-waves after exercise (Figure 5). This subject had done twice the prescribed amount of exercise before these abnormalities were recorded.

Discussion

Of the 26 subjects included in this study, three had abnormal exercise electrocardiograms. One subject developed an arrhythmia after exercise (Figure 3); one subject had T wave inversion before exercise (Figure 4), which reverted to normal immediately after exercise; and one subject developed terminal depression of the ST segment with inversion of the T waves (Figure 5).

Of these three subjects, only the last developed changes which could be interpreted as possibly demonstrating myocardial ischemia. Other authors have found these electrocardiographic changes in apparently healthy athletes.[1, 3, 12, 13, 16] Many causes have been suggested,[7] including vagal coronary vasoconstriction,[13] muscular hypertrophy outstripping vascular supply, and asynchronous repolarization.[5]

The T wave inversion noted in the one subject at rest is of the innocent variety. It has been produced in young adults by many factors,[2] including emotional stress,[7, 15] autonomic dysfunction,[9, 14] and a full stomach.[7]

The arrhythmia which was produced was possibly on the basis of vagotonia.[1, 13] This phenomenon is not uncommon in young adults and is probably caused by an over-active parasympathetic nervous system,[10] depressing first the sinus node and then the AV node, so that sinus rhythm is followed by nodal rhythm and finally by an idioventricular rhythm.

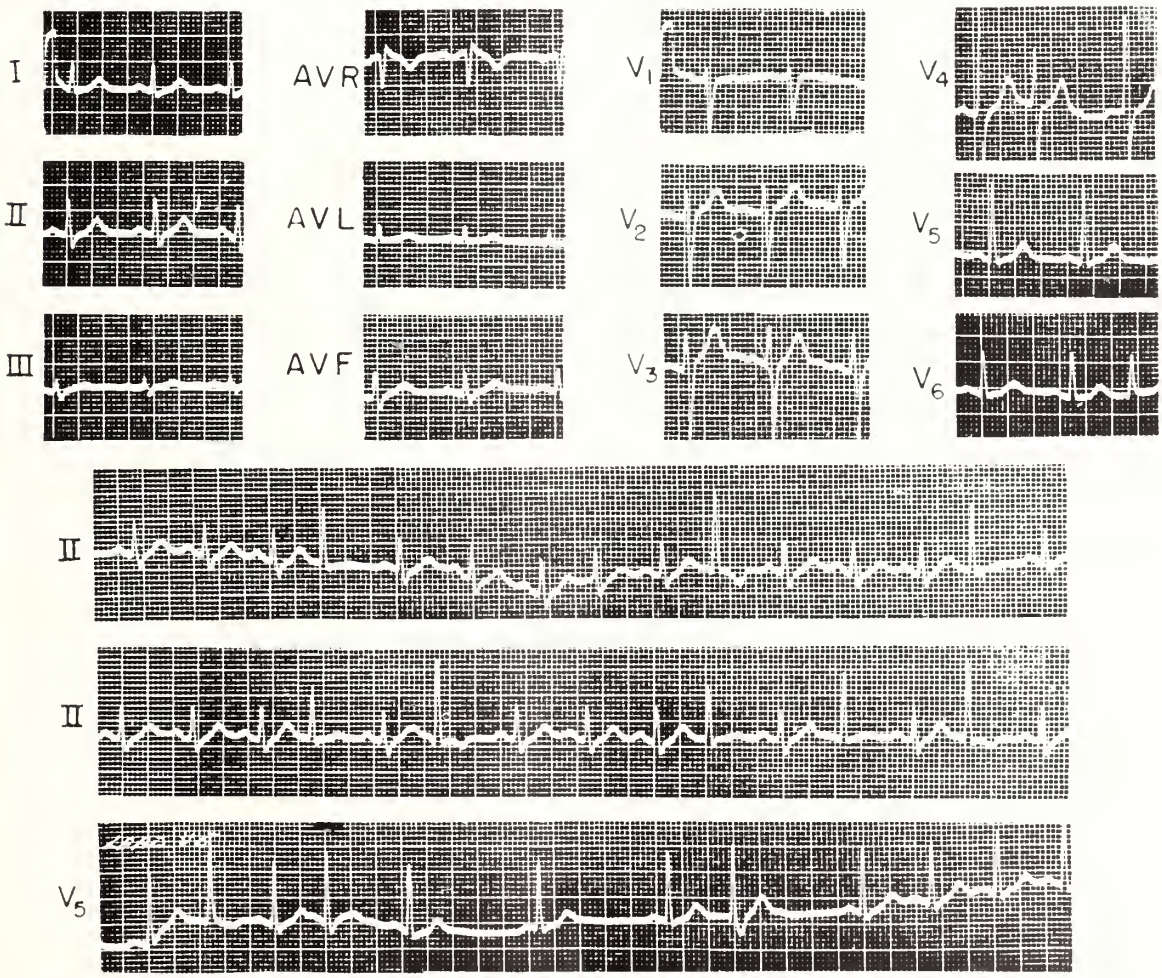

Figure 3. The standard 12-lead electrocardiograph was taken at rest. Leads II and V_5 were obtained after exercise, showing auricular and nodal prematurities and sinus arrest.

This group failed to demonstrate the bradycardia and prolongation of the P-R interval frequently reported in athletes.[1, 5] Weight-lifting does not involve the endurance effort of many other sports and probably does not produce the degree of physiological cardiac hypertrophy commonly seen in many athletes. It may be that sustained effort is required to develop these phenomena.

The men in this group all had marked muscular development of the pectoral muscles (Figure 1). However, no dampening effect of the thick muscle wall on the amplitude of the QRS complex was noted. In fact, five subjects were found to meet one of Sokolow and Lyon's criteria for the electrocardiographic diagnosis of left ventricular hypertrophy. This criterion was based on the absolute amplitude of the R wave and S wave in the V leads. None of these subjects had other criteria for the diagnosis of left ventricular hypertrophy, and none was thought to have left ventricular hypertrophy. The effect of the chest wall on the amplitude of the QRS complex in these subjects is conjectural. Athletes have been noted to have high amplitude QRS complexes and T waves.[6] The same relative percentage of abnormality was observed in 50 senior medical students studied here. This group, because of their relative physiological atrophy, was considered a suitable control group. In one respect only, namely in the greater amplitude of ventricular complexes at V_1 through V_6, did the group of weight-lifters differ from the group of medical students.

Conclusion

Of the twenty-six men who were examined, three were found to have abnormal electrocardiograms. These electrocardiographic changes were probably physiological adaptations well within the capacities of the normal heart.

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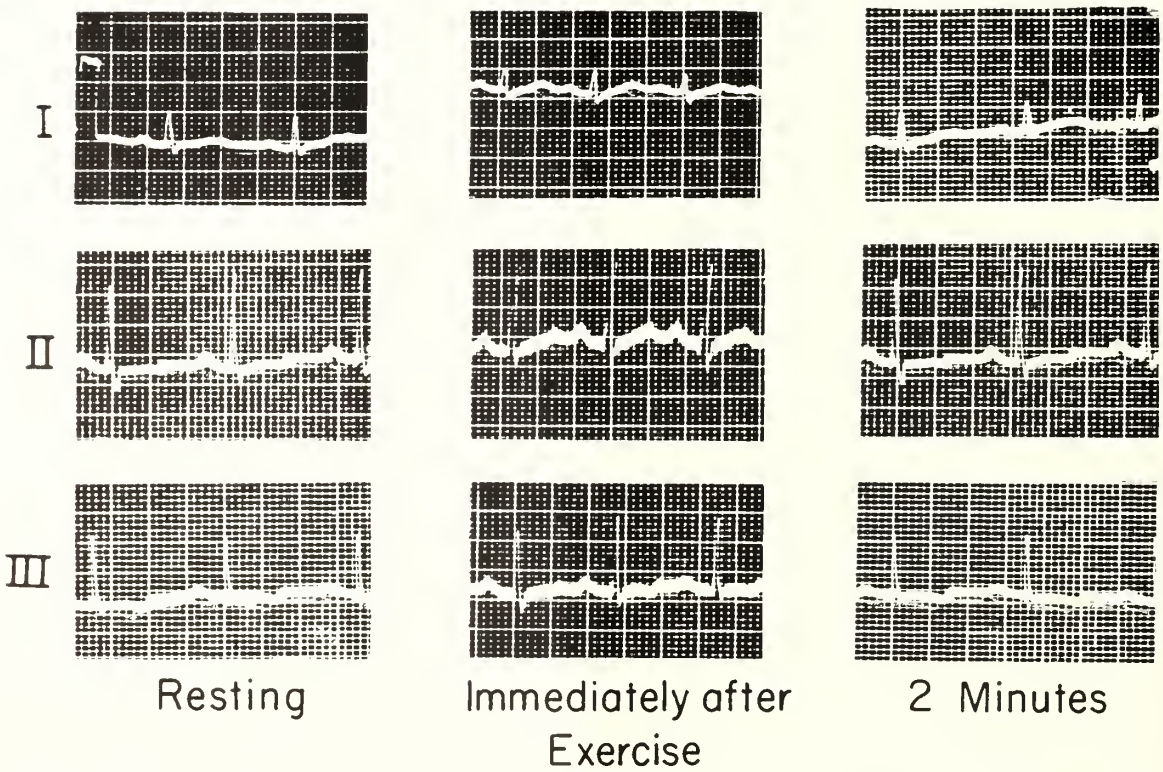

Figure 4. Electrocardiographic tracing of one subject who had inverted T waves at rest which became upright immediately after exercise and inverted again two minutes after exercise.

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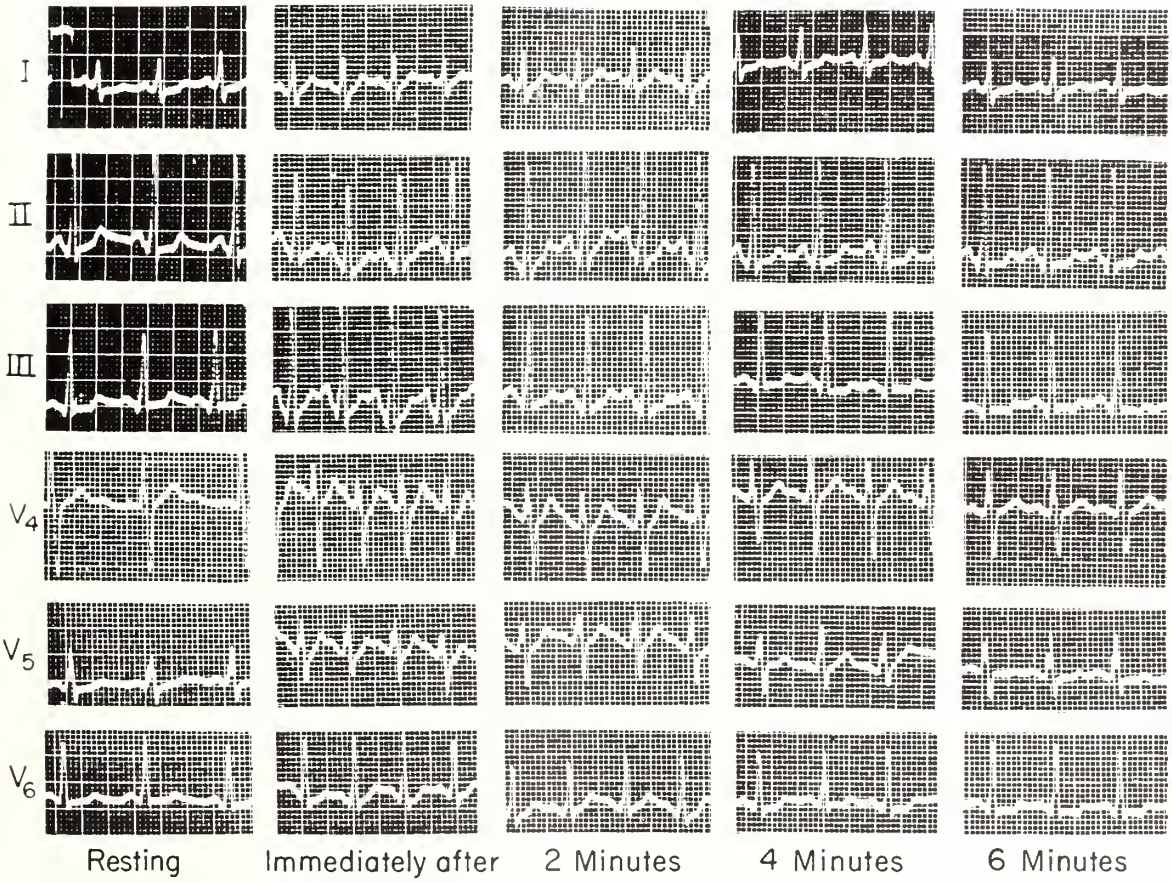

Figure 5. Resting and post-exercise tracings show terminal depression of the ST segment in Lead V_6 in the four- and six-minute post-exercise tracings.

CHANGES OF ADDRESS

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Fluothane

Clinical Appraisal and Report of Its Use in 1,000 Cases

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It has been stated that one of the things urgently needed in anesthesia today is a potent nonexplosive inhalation compound.[1] Halogenation of hydrocarbons reduces flammability and may increase anesthetic potency, but substitution with chlorine or bromine tends to increase toxicity greatly, particularly to the liver and cardiovascular system.

Robbins[2] in 1946, investigating fluorinated hydrocarbons and ethers, concluded that six of these compounds might be of clinical value as they were nonexplosive and had greater therapeutic ratios than chloroform or ether, but their use was frequently complicated by intense hypotension, cardiac arrhythmias (including ventricular fibrillation), and skeletal muscle twitching.

In 1953 Krantz et al.[3] reported favorably on the safety of Fluomar (3) (trifluoro-ethyl-vinyl ether), but this compound was explosive in anesthetic concentrations.

In 1956 Suckling of England, while investigating non-explosive hydrocarbons, synthesized 2 bromo-2 chloro-1, 1, 1, trifluorethane (CF_3 CHCL BR). This compound was given the generic name of halothane and is available commercially under the trade name of Fluothane.

The pharmacology of this agent was investigated by Raventos,[4] and he concluded that it was a potent and safe agent with outstanding anesthetic properties and a therapeutic ratio at about twice that of ether. This drug has already been used extensively in England, Canada, and in this country. Many reports on its wide applicability in anesthesia have been published.[5-12]

Fluothane is non-inflammable and non-explosive in all concentrations of oxygen, air, or nitrous oxide. The agent is stable in the presence of soda lime, heat, and carbon dioxide. When exposed to light, Fluothane decomposes slowly, forming volatile acids. Decomposition is prevented by storage in amber colored bottles and by the addition of 0.1 per cent thymol.

This report deals with 1,000 administrations of Fluothane to 965 patients at the University of Kansas Medical Center by staff and resident anesthesiologists. Although the total number of administrations is not as large as in some series that have been published, it is felt that this series is representative of unselected anesthetic practice at large medical centers.

The true value of any new agent cannot be assessed until experience depicts its advantages and disadvantages. The administration of Fluothane 1,000 times, to 965 patients at the University of Kansas Medical Center, is reported here.

Patients' ages ranged from 6 hours to 93 years. Weight varied from 6 to 277 pounds. Five hundred and thirty-seven were males, 428 females. Sixty-three and nine tenths per cent were considered good risks, 29.0 per cent fair, and 7.1 per cent poor anesthetic risks. Duration of anesthesia varied between 5 and 495 minutes.

Preoperative abnormal conditions included most complications usually seen, including respiratory dysfunction, diabetes, thyrotoxicosis, advanced carcinoma, hypovolemia, shock, anemia, jaundice, poor liver function, decreased kidney function, emphysema, asthma, bronchitis, increased intracranial pressure, epilepsy, aortic stenosis, congenital heart disease, ad-

TABLE I

COMBINATIONS

Fluothane alone	166	16.6%
N_2O-O_2 and Fluothane	157	15.7
Pento. and Fluothane and O_2	56	5.6
Pento. Fluothane and N_2O	421	42.1
Fluothane and Ether	174	17.4
Miscellaneous	26	2.6
	1000	100.0%

From the Section of Anesthesiology, University of Kansas Medical Center.

Acknowledgement is given to the expert technical assistance of Mr. Steve Angell and thanks to Ayerst Laboratories which provided the Fluothane used.

vanced arteriosclerosis, and moderate and severe hypertensive heart disease.

There were 14 postoperative deaths. Fluothane as an anesthetic agent was considered contributory in one. The agent was used for a wide variety of surgical procedures including intracranial, intrathoracic, intracardiac, abdominal, ophthalmic, dental cases, etc. No premedication was used in 125 patients. The remainder received the usual pre-anesthetic medication including atropine in 508 cases and scopolamine in 367. Supplemental intravenous atropine during anesthesia was given to 34 patients.

The combinations used are illustrated in Table I. Techniques are outlined in Table II, and types of machines for semi-closed technique in Table III.

Results

Induction: Induction with Fluothane was smooth, rapid, and free from coughing, straining, salivation, or laryngospasm, even in unpremedicated patients. Pharyngeal and laryngeal reflexes were quickly obtunded.

Surgical anesthesia was attained in 1 to 12 minutes (average 3.6 minutes) when Fluothane alone was used, and in 3 to 12 minutes (average 4.4 minutes) following a "sleep" dose of Pentothal. Muscle tone was quickly abolished, relaxation of the jaw being particularly good. Satisfactory condition for endotracheal intubation was readily obtained and patients were easily intubated under Fluothane alone, the only disadvantage being rapid emergence from anesthesia. Relaxation was unsatisfactory for abdominal surgery.

TABLE II

TECHNIQUES

Open	167	16.7%
Closed	8	.8
Semi-closed	665	66.5
Anesthesia Maintained by Insufflation	32	3.2
Combinations (Open-semi-closed)	128	12.8
	1000	100.0%

Signs of deepening anesthesia were similar to those seen with ether, but the relatively early onset of quiescence was sometimes misleading unless careful observations of respiratory movements and eye signs were also made. It was found that the pupils were large during the induction period but became small when light surgical anesthesia was attained. The pupils enlarged slightly as anesthesia deepened but were never fully dilated even during anesthesia pushed to respiratory arrest.

Salivation was troublesome in only one case. When secretions had been noticed prior to the induction, administration of Fluothane resulted in a suppression of secretory activity even in unpremedicated patients.

Fluothane is the most potent inhalation anesthetic agent we have today. It is almost twice as potent as chloroform, according to Raventos.[4] Raventos has also shown that the blood-level of Fluothane changes rapidly with changes in concentration of the drug in the alveoli, and that the solubility of Fluothane in the tissues of the body is low, in contrast to that of ether. Hence changes in alveolar Fluothane concentrations are rapidly reflected in the blood and central nervous system concentrations of the drug, compared to the much longer time lag in the case of ether, and thus a greater safety margin. For these reasons small variations in the inhaled concentration of Fluothane are critical and cause rapid and marked changes in the depth of anesthesia. Some of the methods and apparatus used in administration of older inhalational agents have been found unsatisfactory when used to administer Fluothane. New equipment has been designed to administer this potent agent more safely and easily.

TABLE III

TYPES OF MACHINES FOR S. C.

Heidbrink	522	78.5%
McKesson	40	6.0
Foregger (drip)	37	5.6
F. N. S.	39	5.9
To & Fro	8	1.2
Infants Circle Abs.	19	2.8
	665	100.0%

In this series of cases Fluothane was administered with all the standard techniques for inhalation anesthesia (See Tables I, II, and III). It quickly became evident that Fluothane anesthesia was safe, and the depth of anesthesia easily controllable, only when a method was used which permitted known small concentrations of vapor, accurate to within 0.1 per cent, to be given to the patient in the inhaled gas mixture. This confirms the work of other investigators.[10, 13, 14, 15, 16]

In those cases in which a calibrated vaporizer was used, the concentration of Fluothane needed to maintain surgical anesthesia varied between 0.7 per cent and 2.4 per cent with an average of 1.6 per cent. In no case was it necessary to give more than 3 per cent, even for induction. If uncalibrated vaporizers are

used, much larger concentrations than this may suddenly be delivered into the system, since Fluothane is extremely volatile at room temperatures. This risk is heightened when warm soda-lime is present in the system. These undesirable high concentrations may cause profound respiratory depression, bradycardia (especially in the inadequately atropinized subject), a dramatic fall in blood pressure, and cardiovascular collapse with possibly cardiac arrest.

It is essential that the vaporizer be so placed in the anesthetic circuit that it is not subjected to fluctuations in the volume of gas passing through it. This means that the vaporizer must be situated distal to the gas flowmeters of the anesthetic machine through which a known volume of gas is flowing, and proximal to the circle or to-and-fro portion of the system. If it is positioned in a circle or to-and-fro system between the rebreathing bag and the patient, the gas volume passing through the vaporizer, and hence the Fluothane vapor concentration, will vary greatly, to an unknown and dangerous extent, with alteration in the rate and depth of the patient's respiration.

The dangers of building up lethal concentrations in the system will be much increased with this type of circuit if assisted or controlled respiration is being employed.

We have found in this investigation that the most dangerous and potentially lethal method of administering Fluothane is to use it in a completely closed circuit. This agrees with the observations of other workers who have used Fluothane extensively in clinical practice.[6, 8, 9, 10, 15, 16, 17, 18, 19, 20] The only reported exception to this is the work of Marrett.[21] Using a standard Marrett anesthetic machine, he has given Fluothane in a closed circuit to over 1,500 patients without a single death either during anesthesia or during the postoperative period. Vapor concentrations, as Brennan et al.[18] have shown, may quickly reach several times the lethal concentrations in these circumstances. Indeed it would appear certain that all the reported deaths occurring during Fluothane administration have been due to errors of technique resulting in overdosage followed by severe hypotension, apnea, and finally cardiac arrest, rather than to any inherent pharmacological defect in the drug.

Fluothane is expensive, and it would be more economical if it were practical and safe to use it in a closed system. Fluothane was given to eight cases, using a closed circuit, but in each case, in spite of great care, it was difficult to control the depth of anesthesia and prevent the patients from reaching too deep a plane of anesthesia.

Fluothane vaporizers now available are:

1. The "Fluotec" Fluothane Vaporizer. This is calibrated from 0.5 per cent-3.0 per cent vapor concentrations and is accurate to within 0.05 per cent throughout this range.[13] An incorporated thermostat automatically compensates for any temperature variation between 60°F and 90°F, and a gas control valve insures consistent results for any given setting of the control dial when gas flows from the flowmeters between 4 and 15 liters per minute are used.

2. The "F.N.S." Fluothane Vaporizer. This is calibrated from 0.0 per cent-4.4 per cent vapor concentrations at 4 liters gas flow per minute at 77°F.

3. Ohio-Heidbrink Fluothane Vaporizer. This is calibrated from 0.0 per cent-3.0 per cent vapor concentrations at 4 liters gas flow per minute at 75°F.

4. Foregger Copper Kettle. This apparatus may be used to give accurately known, constant concentrations of Fluothane. Tables are available giving vapor concentrations delivered, using different gas flows. This instrument is not so simple or convenient to use as one of the other vaporizers in which vapor concentrations are calibrated directly on a dial.

The safest way to administer Fluothane is to use one of these vaporizers in conjunction with a non-rebreathing technique. A non-rebreathing valve may be used in the circuit to achieve this. The big drawback to this method is that it is expensive, using relatively large amounts of Fluothane and high gas flows. However, it does avoid any possibilty of concentrations of Fluothane building up to dangerously high levels in the circuit.

The type of calibrated vaporizer that first became available to us was the F.N.S. Fluothane Vaporizer. This vaporizer was used in 39 cases with a semi-closed circle, or to-and-fro, system, and a fresh gas flow of 4 liters per minute. It was found that, with this flow, to maintain a patient in surgical anesthesia, approximately 13 cc. per hour of Fluothane were vaporized. Subsequently, in over 300 cases, the F.N.S. vaporizer has been used and has performed well.

Before obtaining an F.N.S. vaporizer, Fluothane had been administered to more than 500 patients with the circle system of a Heidbrink machine. The Fluothane was placed in the ether vaporizer bottle situated on the inspiratory side of the circle. The wick was removed from the vaporizer, and a gas flow of 2 liters per minute was used. This method did not prove satisfactory as there was no close control of the vapor concentrations in the system and a "swinging level of anesthesia" resulted.

However, when using a calibrated vaporizer, it is a great mistake to rely too much on the settings of the controls of the machine to the neglect of the patient's physical signs. Both must be observed if mistakes are not to be made.

For the same reasons, in babies and small children,

Fluothane is now administered by means of a calibrated vaporizer, and an infant circle, or to-and-fro, absorber rather than inducing the child with open-drop Fluothane.

Previously children had been induced with open-drop Fluothane. Because little is known about vapor concentrations under the mask with this technique, it was felt that it was too dangerous for routine use. Although induction was smooth, more rapid than with vinyl ether, associated with little excitement, and remarkably free of secretions, on several occasions within 20 to 30 seconds of the start of induction respiration became deeply depressed, there was a marked slowing of the pulse, and a fall in blood pressure. These are signs of a severe over-dosage of drug. It is felt that, if open-drop induction is indicated, vinyl ether is still the agent of choice, since, although induction is slightly slower and secretions are stimulated more than when using Fluothane, it is safer under these conditions.

Although Fluothane is a potent anesthetic, it became apparent during this series that it is not a powerful analgesic. For this reason the gas mixture that was used when giving Fluothane was 50 per cent N^2O and 50 per cent O_2. This meant a flow of 2 liters N^2O and 2 liters O_2 per minute when using the F.N.S. Vaporizer. It was found that small doses of meperidine (10 to 25 mgm.) introduced intravenously were useful in controlling tachypnea which was seen in 179 patients, most of whom were children.

The majority of adult patients were induced with a sleep dose of Thiopentone followed by N_2O, O_2 and Fluothane. The average vapor concentration needed for maintenance was 1.6 per cent. Using Fluothane for induction required 2.0 per cent to 3.0 per cent vapor concentration, this amount being reduced for maintenance.

Respiration

Respiratory rate was unchanged in 648 patients.

The rate was decreased in 75 patients, and a tachypnea was seen in 179 patients. This increased rate was similar to the tachypnea seen with trichlorethylene. In seven patients, a rate of over 50 per minute was recorded. Tachypnea was seen mainly in children, only rarely in adults after Pentothal induction or intravenous administration of Demerol. Apnea was produced intentionally 12 times but unintentionally 15 times. Controlled respiration was used in 104 patients. Respiration was easily controlled and lung compliance appeared to be increased. This is suggestive of a bronchodilatation.

Cardiovascular System

Within a few minutes of induction of anesthesia, the skin was noted to be flushed, warm, and dry, superficial limb veins became prominent, and conjunctival vessels became suffused. These changes were more marked than with other agents and are highly suggestive of a partial sympathetic ganglion block.

An increase in pulse rate was recorded in 133 patients and a decrease in 275. It was not found that premedication with atropine gave a significantly lower incidence of bradycardia.

Intravenous administration of atropine during anesthesia to 34 patients partially corrected an existing bradycardia seven times.

Electrocardiographic Findings

In 23 cases a continuous direct writing electrocardiogram was obtained, before operation, during induction, and until Fluothane was discontinued. One case showed A-V nodal rhythm before induction which changed to sinus rhythm during induction and back to nodal rhythm during endotracheal intubation. A second showed premature auricular contractions with bigemini before any anesthetic, which changed after intubation to sinus rhythm, only to revert back to auricular prematurities and bigemini ten seconds after intubation.

Five others showed changes during administration, three with nodal rhythm and two with premature auricular contractions.

The other 16 showed no electrocardiographic changes, one case being of interest in that an inadvertent overdosage of Fluothane was given just after intubation, producing respiratory arrest with no palpable pulse. However, there was no alteration in the electrocardiogram, and the pulse returned within two minutes while the patient was ventilated with 100 per cent O_2. Blood pressure studies were made in 666 cases in which 328 were unaffected. Changes attributed to other factors were demonstrated in 90 cases. In 29 patients there was a rise in blood pressure, and in 219 there was a fall in blood pressure. The pressure fell more than 40 mms. Hg. in 38 patients. The fall seemed to be directly related to the concentration of Fluothane, condition of the patient, and other agents used; it was quickly reversed by lightening the level of anesthesia.

Methedrine proved more effective than Vasoxyl in treating hypotension, but intravenous atropine was ineffective. Hypotension was found to occur more readily in hypertensive patients, where hypovolemia or anemia was present before operation and following the administration of moderate doses (over 300 mg.) of Pentothal for induction. If bleeding occurred during operation, a greater fall in blood pressure resulted than would usually be anticipated. Premedication with atropine afforded no protection from hypotensive episodes.

Doses of curare, less than 10 mgms., did not aggravate the tendency to hypotension, but doses greater than 15 mgms. were associated with a fall of over 40 mgms. Hg. in four patients. Perhaps this is due to the ganglionic blocking effects of curare. Other commonly used muscle relaxants did not appear to directly affect the blood pressure. Small amounts of subcutaneous epinephrine were given to 39 patients and caused a transient rise in pulse rate in 14. No arrhythmia was detected, but Stephen has warned of the possible dangers in using epinephrine with Fluothane.

Postoperative Period

Recovery from anesthesia was usually rapid and free from excitement. Protective reflexes returned on an average of 4.68 minutes and movement on command in about 10 minutes.

Nausea or vomiting was seen in 6.2 per cent, easily controlled by usual postoperative medication.

Hypotension was seen in 35 cases in the immediate postoperative period. Twelve patients produced small volumes of concentrated urine, and 5 of these needed catheterization. The significance of these findings is not apparent, but it was noted during ureteric catheterization that deep Fluothane anesthesia suppressed urine production in five patients without lowering blood pressure. Fluothane did not seem to affect other metabolic processes.

One patient who received Fluothane 17 times during a period of seven weeks showed no clincial evidence of kidney or liver injury.

There were 14 postoperative deaths. Fluothane was considered contributory in one case and is the basis of a separate report.

Advantages

Non-Explosive
May be used with soda lime
Potent—rapid induction and recovery
Suppression of salivary and bronchial secretions
Non-irritant
Allows respiration to be easily controlled
Low incidence of nausea and vomiting
Low incidence of postoperative hypotension and shock.

Disadvantages

Relatively poor analgesia
Cardiovascular depression
Respiratory depression or tachypnea in light anesthesia—apnea in deeper planes
Possibly dangerous with epinephrine and norepinephrine
Requires special vaporizer.

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Cerebral Palsy

The Need for Reevaluation of Obsolete Concepts

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In 1861, almost 100 years ago, William Little first described many of the crippling conditions which are now generally referred to by the term "cerebral palsy." He pointed out the need to investigate obstetric and neonatal situations and their relation to the child's mental and physical health.

In a masterful monograph published in 1897, Sigmund Freud reviewed all the known factors in these conditions and invoked others that might cause neurologic disability in the child. Physicians have long known that "cerebral palsy" or "Little's disease," does not represent a single disease entity, yet they have continued to characterize children by these terms while paying little attention to the etiology of the individual's disability. The result has been an increasing divergence in therapeutic methods, leading to confusion in therapy for a particular case.

Many attempts have been made to restrict the use of the term "cerebral palsy" to a particular group of patients. Phelps defined the expression as "a group of conditions which affect the control of the voluntary motor system and have their origin in lesions of various parts of the brain." Using this definition, both progressive and non-progressive disease of a developmental, traumatic, neoplastic, vascular, or even infectious nature could be included.

Kurland stated that the term cerebral palsy refers to those disorders of uncertain or unknown etiology arising during the perinatal period—that is from conception to the end of the neonatal (first month) period—affecting the motor function of the brain and in which the dysfunction is recognized prior to the end of infancy (two years). According to this concept, "cerebral palsy" is a more limited but still a miscellaneous category; it is essentially a diagnosis of exclusion.

Merritt stated his opinions succinctly when he said, "Cerebral palsy is a heterogeneous group of cases with damage to the nervous system in utero, at birth, or in early life—but not a disease entity."

The term "cerebral palsy" is a poor descriptive one, since it means simply that there is paralysis or weakness, presumably of cerebral origin.

The primary problem of the "cerebral palsy" or, better, the "special pediatric" clinic, is that of correct diagnosis, since children come to the clinic affected in many different ways by many different etiological agents. It is not absolutely correct to state that in all cases of "cerebral palsy" the central nervous system itself is involved, since children with muscular dystrophy or even orthopedic conditions are frequently encountered in such clinics.

Over the years systems of classification of the different types of "cerebral palsy" have been evolved. Phelps's classification is still widely used. He divided cases into five groups: those affecting the cortex, those affecting the basal ganglia, the ataxias (cerebellar), the tremors, and the rigidities. This purely descriptive classification is of limited usefulness since it takes into account only the site of the lesion and not the possible etiology. In terms of possible therapeutic measures, it is far from satisfactory.

Problems presented by children in special pediatric clinics should be studied by a team of specialists. Only through knowledge of each child's disease and potential can proper therapy be planned.

What, then, are the possible etiologic agents causing crippling disease in children seen in special pediatric clinics? They run the gamut of traumatic, metabolic, infectious, vascular, neoplastic, and congenital diseases. The physician's task is to determine if possible the *time* of the lesion: whether it occurred during the perinatal or postnatal period. A detailed history of the pregnancy is as important as a complete account of the obstetric situation. It is too often forgotten that difficult deliveries are frequently the result of a malformed child, rather than the reverse. This has great significance in terms of counseling with regard to the management of subsequent pregnancies.

The term "congenital" is one that is so frequently used in categorizing diseases that it needs some definition. "Congenital" means "existing at birth." It is a too-inclusive word with little meaning which is often used interchangeably with "familial" and "heredi-

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tary." To be truly hereditary, a disease must be genetically determined at the time of conception. It must be the result of the interaction of the genes present in the sperm and ovum unaffected by the environment.

Sir Archibald Garrod's original inborn errors of metabolism: albinism, alkaptonuria, cystinuria and pentosuria, and many others since described, are examples of such conditions. These need not necessarily be familial since only one of the offspring may be affected by the disease and the others not.

Kernicterus, although the result of interaction of genetic factors, should not be classified in the same group since it is an environmental factor that causes the disease, i.e. the mother's reaction to the antibody contained in the fetal blood which is at the root of the pathological factors, not a direct genetic influence.

The mother's genetic make-up may affect her offspring indirectly. It has been shown that diabetes probably represents a genetically determined disease; therefore, a diabetic mother may affect the child by modifying intra-uterine conditions. The same can probably be said about mongolism as the result of the age of the mother, or uterine exhaustion, and probably other still unknown factors. Certainly it is now recognized that intra-uterine infection caused by German measles or toxoplasmosis may result in a malformed or retarded child.

Hereditary diseases may be familial, but not all familial diseases are hereditary. The fact that the same disease affects siblings is not proof that it is inherited or genetically-determined. Kernicterus may be familial, as may any disease which is the result of environmental factors affecting intra-uterine life if such factors remain operative in more than one pregnancy.

Anoxia or intracranial hemorrhage, either spontaneous, the result of intra-uterine conditions, or the result of obstetrical trauma, will also give rise to conditions which may be indistinguishable from those resulting from agenesis of various parts of the brain. The children of a myasthenic mother are examples of how varied the effects may be; a child may be truly myasthenic, or a newborn child may be temporarily myasthenic, probably as the result of having in its system a cholinesterase-like or a curariform-like substance from the mother, or it may be completely normal. All these conditions are in one sense "congenital," but to stop at this point in characterizing them is to miss the possibility of discovering a remediable condition in the mother or advising the parents about further progeny.

Attention must also be paid to the problem of progressive versus nonprogressive disease, and to the differentiation between true progression and pseudoprogession of the disease. In many instances, the child's deficit becomes more apparent as he grows. This may be evidence of increasing disability caused by progression of the disease process, but more often than not it is simply due to the fact that the growing child makes more and more demands upon his basic mental and physical endowment.

If this endowment is deficient, it cannot meet the new requirements, and thus the disability appears to be greater. Many children do not manifest their disease until they begin to walk or talk. There are, however, true progressive diseases better called true degenerative diseases, such as the lipidoses or diffuse sclerosis or leucodystrophy. In those diseases the pathologic process increases the deficit in the same way that a neoplasm increases in size, and with the same results.

Certain hereditary disorders such as muscular dystrophy or the spino-cerebellar ataxias (for instance, Friedreich's ataxia) may become manifest several years after birth, frequently in late childhood or adolescence. Others, such as myotonia dystrophica, may not appear until adulthood; while still others, such as Huntington's chorea, may wait until middle age to become apparent. Thus normal early development does not necessarily mean freedom from neurologic disease of a congenital nature. Normal early development is the rule, in some conditions, such as the cerebral sclerosis of Schilder, and leucodystrophies, the leucoencephalitides, and the lipidoses. The time of onset of the disease is of little value in determining whether or not it is heredo-degenerative.

In evaluating possible therapeutic measures, this differentiation is of the utmost importance. In gauging the child's normal development, it may be redundant to point out that the usual landmarks of sitting, standing, walking, and talking are nothing more than statistical averages and the late sitter or walker may be perfectly normal, while the child with definite brain damage may reach these landmarks at the proper time, or even early. It is extremely difficult in many instances to evaluate properly the status of a child in infancy, and a period of observation of six months to a year without heroic corrective therapy may, in the long run, be the more beneficial course to follow.

The importance of correct early diagnosis, however, cannot be over-emphasized since in many conditions encountered in the special pediatric clinic there are direct, specific therapeutic measures available. Unfortunately, the condition is too often beyond help by the time the child is seen by competent specialists. The burden thus lies squarely upon the general practitioner or pediatrician for early recognition and institution of therapy or referral to the competent specialist.

For too long a time the view has been held that the brain damaged child needs the care of the orthopedic

surgeon and no one else. The orthopedic surgeon is of immense help when the proper therapy consists of surgical muscle or tendon transplant or joint stabilization, in other words if the basic defect is indeed an orthopedic one. Orthopedic measures, however, are usually and properly late interventions.

The proper way of arriving at the diagnosis in the disabled child is through the team-approach. The pediatrician, the neurologist, the neurosurgeon, the orthopedic surgeon, the plastic surgeon, the radiologist, the psychiatrist, the psychologist, the ophthalmologist, the otologist, the speech therapist, the physiatrist, and the dentist are all indispensable. It is only after the child has been seen by all the appropriate members of the team, and after a battery of specific laboratory tests, that his ailment can be diagnosed and the necessary therapeutic measures instituted.

Completely remediable conditions are frequently seen in special pediatric clinics and can be arrested or cured if intervention is early enough. Certain cases of hydrocephalus, certain benign intraspinal or even intracranial tumors, subdural hematomas, diastematomyelia, certain intracranial vascular anomalies, premature synostosis, and other such disorders must be diagnosed as early as possible. Myasthenia gravis and some forms of metabolic disturbances such as phenylketonuria and galactosemia if treated early present a good possibility for improving the prognosis.

Another great problem, often overlooked in the child with brain damage regardless of etiology, is the presence of concomitant abnormalities which might respond to therapy. In special pediatric clinics, between one-third and one-half of the children have convulsive disorders. Repeated convulsions may severely injure the brain, and an otherwise normal child may become hemiplegic or even decerebrate following status epilepticus. An uncontrolled convulsive disorder will frequently impair a child's progress and give the examiner a distorted appreciation of his rehabilitation potential. Control of convulsive disorders *must* be an integral part of the treatment program.

Another extremely important factor in evaluating the child is discovering his mental aptitude. From figures published by many special pediatric clinics it appears that at least 50 per cent of the children are mentally retarded, and a large percentage of those are severely retarded. This is a point that must not be overlooked in planning a therapeutic and training program for the child.

Unfortunately, specific medical or surgical therapeutic measures are applicable only to a small percentage of the patients in special pediatric clinics. This leaves a large group in whom treatment must be symptomatic and supportive. In planning for such children, the first criterion that should be applied is related to potential response to training. The second one is that of the practical goal of therapy and training. In order to evaluate these two factors, it is necessary to look into the background of a large number of special pediatric clinics.

In many communities lay groups are formed by parents and relatives of so-called "cerebral palsied" children who give generously of their time and money for the support of clinics. There are also national organizations of this type which foster research programs in addition to supporting patient care. There can be no question but that the motivation of these organizations is good. There is, however, some doubt as to the validity of their goals. It is a sad if not always recognized fact that not every child who is retarded or brain-damaged will necessarily profit from therapy or training.

It may be harsh to tell a mother right from the start that no amount of surgery, education, or physical and occupational therapy presently available will make her child sit up or walk or talk; but isn't it equally heartless to have to tell this same mother, several years and many thousands of dollars and man-hours of therapy later, that there really is no known hope for her child? Too often parents have concentrated all their affection upon the disabled child, neglecting their other children, or have even decided not to have any more children because of absent or erroneous eugenic advice based on incomplete or incorrect diagnosis.

Parental and organizational pressure upon many clinics to accept all disabled children for treatment often makes the proper selection of patients for optimum therapeutic effort an extremely difficult task, yet this selectivity is the clue to proper treatment and training. In this connection the services of the social worker are invaluable. There is not, and in the foreseeable future probably will not be, enough money, time, and personnel to give proper care and training to all children who come to special pediatric clinics. The selection of patients must be based solely upon strictly medical considerations: the diagnosis and the child's potential, especially in terms of his mental endowment. For example, it is pointless for a speech therapist to spend many hours teaching a few words to a child with an IQ of 20. It is equally purposeless to try to teach a child to walk if he cannot even be toilet-trained because of severe brain damage.

Selection of the patient must go hand in hand with goals of therapy, since the two are dependent upon each other. For some children, therapy and training must be limited to making the problems of institutional care easier. For others, it must be gauged in terms of potential mental and physical ability.

The problem of the child with spastic diplegia

often presents a good example of what might be called "unrealistic therapeutic effort." Experience in World War II with thousands of paraplegics has shown that persons handicapped in this way can be trained to lead useful and relatively normal lives in wheel chairs. With special automobiles, with relatively minor modifications in the home, thousands of men have resumed productive lives, have married, and engaged in a wide variety of employment and recreational activities.

This knowledge seems to be unknown in many special pediatric clinics where thousands of hours and dollars are spent in orthopedic operations, corsets, and braces—not counting the patient's suffering—with the result that the patient, loaded down with heavy and ungainly apparatus, can usually, with the help of crutches, drag himself awkwardly from his wheel chair to the dinner table. This is *not* "rehabilitation." In the course of attempting the useless standing posture and walking, the handicapped child has been denied the training that could have been achieved more realistically by confining him to a wheel chair and utilizing to the utmost his upper extremities, which are now encumbered by crutches.

Standards for training are often too rigid and unrealistic in other areas. Schooling is important, but the goals to be reached should be decided upon in advance. If a child cannot learn how to read and write and do simple arithmetic, it is not at all inconceivable that he might learn how to run an elevator, drive a tractor, take care of cattle, or even be a passable automobile mechanic. The goal should be to make the individual self-supporting to the degree that his intellectual endowment allows.

Each child who is seen in the special pediatric clinic presents a special problem. Only a thorough evaluation by a competent team of specialists can answer the five basic questions which must be asked in every instance: What is the cause of the disability and what can be done to remedy it? What advice should be given the parents concerning further pregnancies? What is the child's potential in terms of training, and what are the realistic goals of therapy and rehabilitation in this child?

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The number of books that have appeared since the invention of printing runs into the millions. The Library of Congress has more than 10 million books within its walls, and more than 14 million letters, manuscripts and private documents. The scope that is open to the collector of the written word is obvious.

It is through books that we acquire our basic education, and books are certainly the most persistent element of our civilization, the most pervasive, and still the most efficient means for the transmission of knowledge from generation to generation. A book is a medium, a means to an end, a tool one need only grasp to have at one's command.

—*Anthony Benis*

Chest X-rays

Analysis of Data from Reading and Re-Reading Films

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This paper is presented in an attempt to clarify some aspects of a study by Garland and Cochrane in the reading of chest x-rays. In that study, which appeared in the *Journal of the American Medical Association* about six years ago, 89 x-ray films (size 14 x 17 in.) were read by each of six British experts on two different occasions and by three American experts who also read the films twice. The investigators report a number of interesting differences, both inter-reader and intra-individual. They conclude, on the basis of these data, that "observer error" in the interpretation of x-rays is a "significant problem."

In presenting these data to the sophomore biostatistics class, it seemed to me that it was possible to extract more information of interest by a further analysis involving techniques not used by the original investigators. Furthermore, to state that "the amount of inter-individual and intra-individual disagreement was significant" perhaps leaves an area of ambiguity. It might contribute to our understanding of the data if we could specify certain differences which are *not* significant, in addition to those which are. And, in addition, it might be worth highlighting certain difficulties in assessing the statistical reliability of intra-individual differences.

TABLE I

Films Read TB Positive (TB+) and TB Negative (TB−) by British and American Readers (89 Films)

Rdr	1st Rdg. TB+	1st Rdg. TB−		2nd Rdg. TB+	2nd Rdg. TB−	
			British			
A	34	55		28	61	
B	24	65		29	60	
C	28	61		29	60	
D	27	62		29	60	
E	21	68		21	68	
F	23	66		24	65	
			$X^2=5.78$ $P > .05$			$X^2=3.07$ $P > .05$
			American			
J	35	54		31	58	
K	35	54		33	56	
L	28	61		30	59	
			$X^2=1.58$ $P > .05$			$X^2= .23$ $P > .05$

Data on the reading of 89 chest x-ray films are re-analyzed. Six British and three American experts read the same films on two different occasions. Data indicate that in some instances there is agreement and in others significant disagreement.

Presented in Table I are the "TB positive" (TB+) and "TB negative" (TB−) readings for the 89 films for both British and American readers. These are adapted from the original tables. In the present form they are somewhat more wasteful of tabular space but have the merit of indicating precisely what comparisons are being made as well as specifying the statistical reliability of results of such comparisons. It is clear that differences among the British readers are *not* statistically reliable; that is, in both the first and second readings, the differences among the six British readers are of only chance magnitude. So, considering *only the number of films called TB+ and TB−*, these may not be characterized as "real" differences. And precisely the same thing may be said about differences among the American readers for both the first and second readings.

However, in striking contrast, when one considers only those films read as TB+ and breaks down these readings into "active" and "inactive" process, a different state of affairs obtains. As seen in Table II (also adapted from Garland and Cochrane), differences among the British readers are statistically significant for both the first and second readings—for the first readings at the one per cent level and for the second set of readings at the two per cent level. Not so, however, for the American readers. When one considers only the *number* of films read as "active" and "inactive," the English readers are different and the American readers are not.

Next, using the figures in Table I as a basis for comparing American with British readers, we can treat each of the figures as a "score" and apply the

TABLE II

Number of TB+ Films Read as Active and Inactive by British and American Readers

	1st Rdg. ACT.	1st Rdg. INACT.	2nd Rdg. ACT.	2nd Rdg. INACT.
British				
A	11	23	12	16
B	19	5	18	11
C	17	11	17	12
D	20	7	20	9
E	5	16	5	16
F	11	12	8	16
	X^2=21.18 P .01		X^2=13.63 P .02	
American				
J	20	15	17	14
K	26	9	23	10
L	18	10	20	10
	X^2=2.40 P > .05		X^2=1.68 P > .05	

Wald-Wolfowitz runs test. (This is a "non-parametric" test and as such can be applied irrespective of the form which the distribution of scores takes.) In such a comparison we find, interestingly enough, that the British and American readers are *not* reliably different from each other on the first interpretation of the x-ray films, but are different on the second, using a five per cent level criterion of "real" difference.

Garland and Cochrane give percentage differences between pairs of readers and between two readings for the same reader. It is perhaps worth noting that the differences between *pairs* of readers should be regarded differently from those which obtain for single readers on two different occasions. In evaluating between-pair differences we are dealing with uncorrelated "scores," but the readings for the same individual on two different occasions are correlated. It is possible that a lower *absolute* difference could still be meaningful for intra-person differences of this sort.

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It is not enough for the United States to flood the world with dollars and technical know-how, essential to the world's health as these are. Some $60 billion and invaluable engineering knowledge and technical skills have been poured out in great and good works, and more must follow these. However, these are material and temporary. To consolidate for long-range development the vast investment in so-called foreign aid, management principles, techniques, attitudes, skills and climate must be made an indigenous part of a recipient country's way of life. At the point where enterprise is operated, where people are managed, where markets are analyzed and communities affected, the operators should be nationals, at least in their attitudes and sympathies. This puts a premium on education, training and the development of people to manage.

The shortage of technicians is acute; the shortage of trained managers is worse than acute. It is appalling. But it can be remedied through international cooperation in manager development. The genuine practitioner of management can be a bulwark of the free world against tyranny. The ability of a nation to defend itself, to maintain political, social and economic stability, and to achieve rising living standards depends largely upon the proper attitudes of the men and women who manage the nation's daily affairs. A necessary prerequisite to a nation's bright and free future, then, is an abundant supply of competent and dedicated managers.

But skill and knowledge are not enough. A competent manager's most essential qualities are integrity of character and a genuine feeling for the dignity, independence and freedom of his fellow man. People who do not have these spiritual and ethical qualities can use management's finest techniques to select, train and control others, whose productivity can be directed toward promoting a totalitarian ideology, Communist infiltration and aggression at the expense of human values.

Thus the international management movement, when based on sound human relations as well as on professional knowledge, can be one of the most powerful yet economical tools for maintaining and advancing mankind's interests, both material and moral.

—*A. M. Lederer*

The Artificial Kidney

Its Use in Management of Renal Failure and Poisonings with Consideration of Isolated Jejunal Segment Perfusion for Treatment of Chronic Uremia

WU-HAO TU, M.D., *and* PAUL R. SCHLOERB, M.D., *Kansas City*

Introduction

Through development of homeostatic mechanisms to maintain constancy of the *milieu interieur*, the independence of higher animals from their environment was acquired. These homeostatic mechanisms are guarded by complex functions of the kidneys, lungs, gastrointestinal tract, and endocrine system. The kidneys are the most important end organs for regulation of body fluid composition upon which proper function of an organism depends. Corrective modification of body fluid has been made possible by development of a technique of vividialysis.

Artificial Kidney

The principle, purpose, and basic philosophy for use of an artificial kidney were well summarized by Abel, Rountree, and Turner[1] who applied the technique of dialysis to experimental animals in 1913 and stated, "There are numerous toxic states in which the eliminating organ of the body, more especially the kidneys, are incapable of removing from the body, at an adequate rate, natural or unnatural substances whose accumulation is detrimental to life. In the hope of providing a substitute in such emergencies, which might tide over a dangerous crisis, as well as for important information which . . . might thus be thrown on intermediary stages of metabolism, a method has been devised by which the blood of a living animal may be submitted to dialysis outside the body and again returned to the natural circulation without exposure to air, infection by microorganism, or any alteration which would necessarily be prejudicial to life; this process may be appropriately referred as vividiffusion."

Clinically available means of vividialysis, however, did not become available until Kolff[2] developed his artificial kidney, using cellophane as a dialyzing membrane and heparin as an anticoagulant. Since that time various types of artificial kidneys with different designs have been described, but in principle they are essentially the same. The artificial kidney thus developed maintains a dual function in that it not only removes substances, as was originally stated by Abel et al., but it also may add electrolytes which are essential to the body.

Principles and technique of vividialysis with the artificial kidney are outlined and the use of the artificial kidney as an adjunct to management of acute renal failure, with two illustrative cases, is presented. Clinical experience with Kolff's twin-coil artificial kidney during the last two years at the University of Kansas Medical Center is summarized. Use of the artificial kidney in poisoning is described. The treatment of chronic renal failure with perfusion of an isolated jejunal segment at this institution is reviewed.

Principle of the Artificial Kidney: The principles of dialysis, osmosis, and ultrafiltration are shown diagrammatically in Figure 1. Commercially available cellophane is employed as a dialyzing membrane for the artificial kidney. Submicroscopic pores of the cellophane membrane when it is swollen with water allow passage of only small molecule substances such as water, electrolytes (sodium, potassium, magnesium, calcium, chloride, bicarbonate, etc.), crystalloids and drugs (barbiturates, salicylates, bromide, etc.). When two solutions are separated by this cellophane membrane, differential diffusion takes place according to the concentration gradient of each individual diffusible substance across the membrane (dialysis). Thus, by regulating the concentrations of specific constituents in a dialyzing solution, it is possible to add and withdraw various constituents of blood simultaneously. This makes the artificial kidney the most physiological means presently available for correcting

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multiple electrolyte derangements and removing metabolic end-products at the same time.

Plasma protein, bacteria, and viruses are not permeable through the cellophane membrane because of their large molecular size relative to the pores of the membrane. The presence of protein in the blood, therefore, creates an osmotic pressure and the water moves across the cellophane membrane (osmosis) toward the blood. In an artificial kidney, in which a pressure gradient exists between the blood and the dialyzing solution, movement of water occurs across the cellophane membrane (ultrafiltration), a situation quite similar to ultrafiltration in human glomeruli. The pressure gradient can be provided from hydrostatic pressure by a pump to drive blood through the artificial kidney or by a combination of this positive pressure and negative suction applied to the dialyzing solution to maintain its circulation.

A schematic drawing of the Kolff twin-coil artificial kidney* is shown in Figure 2. Details of function of this artificial kidney have been described.[3, 4] Briefly this apparatus has a dialyzing area of 18,000 sq. cm. consisting of two parallel envelopes of cellophane tubing, 10 meters in length, each coiled around a can and separated by screens of polyvinyl chloride-coated Fiberglas. The patient's blood is forced through the cellophane coil under pressure provided by a Sigmamotor pump. The dialyzing solution is pumped from a 100-liter tank into the coil unit, flows through the fiber screen mesh, and overflows back into the tank. Removal of urea in terms of dialysance[5] (which actually equals the clearance when the dialyzing solution contains no urea) approximates twice that of normal human kidneys. By ultrafiltration, 300 to 400 ml. of water can be removed per hour of dialysis.

Technique of Vividialysis with the Artificial Kidney: The conventional artificial kidney is an apparatus through which the patient's blood flows continuously from his radial artery or inferior vena cava (through a greater saphenous vein) into a dialyzer unit and is then returned to the patient's circulation through a peripheral vein. Catheters are placed in an artery and a vein to obtain continuous flow of blood through the artificial kidney. These catheters are large enough to maintain blood flow of 200 to 300 ml. per minute. In practice, vividialysis is carried out for six hours with this flow rate. During this period dialyzing solution (bath fluid) is refreshed every two hours to increase the efficiency of the procedure.

Heparin, ordinarily in an amount of 120 to 150 mg. for six hours of dialysis for adults, is added to

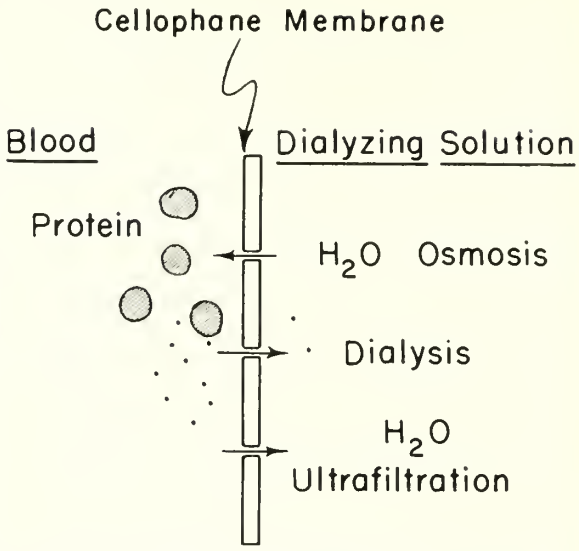


Figure 1. Principles of dialysis, osmosis, and ultrafiltration.

* Travenol Laboratories, Morton Grove, Illinois.

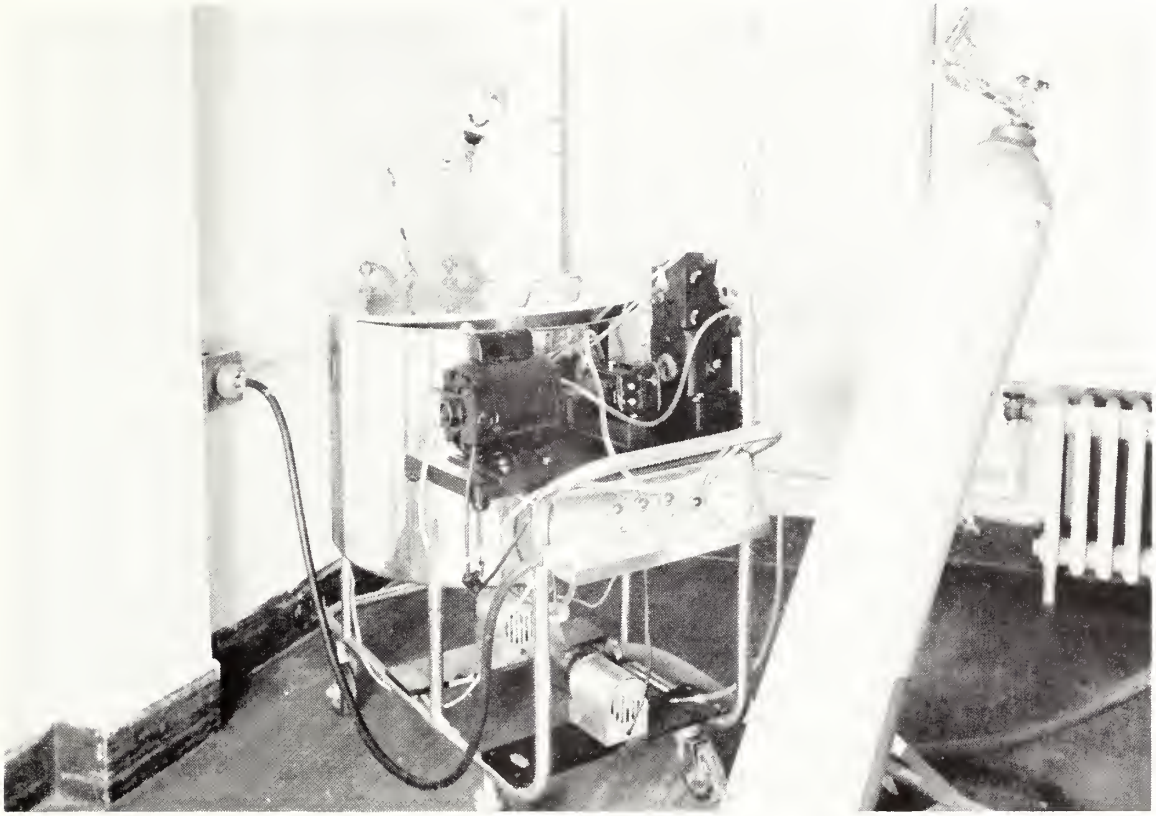
TABLE I

COMPOSITION OF BATH FLUID FOR THE ARTIFICIAL KIDNEY (TWIN-COIL)

		Milliequivalents per Liter					
Component	*Gm. per 100 L.*	Na^+	K^+	Ca^{++}	Mg^{++}	Cl^-	HCO_3^-
Nacl	568	97	—	—	—	97	—
$NaHCO_3$	302	36	—	—	—	—	36
KCl	37.3	—	5	—	—	5	—
$CaCl_2 \cdot 2H_2O$	25	—	—	3.4	—	3.4	—
$MgCl_2 \cdot 6H_2O$	20.3	—	—	—	2	2	—
	Total	133	5	3.4	2	107.4	36

Total osmolarity ..... 284.1 mOsm./L.

Glucose 0.2 per cent ..... 10 mOsm./L.



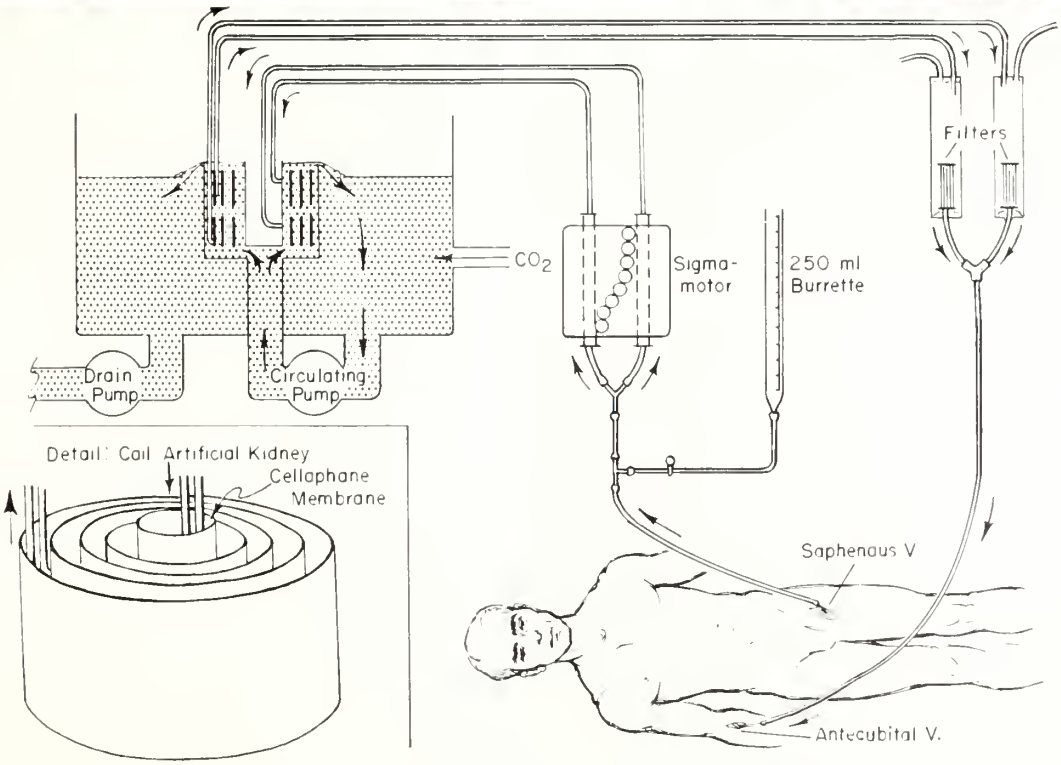


Figure 2. Kolff twin-coil artificial kidney.

this extracorporeal circulation to maintain fluidity of the blood in the system. In order to avoid possible hazard from this systemic heparinization, a technique of regional heparinization by titrating administered heparin with Protamine has been devised.[6]

A proper dialyzing solution should fulfill the following basic requirements: normal pH, (7.4); all the physiologically essential electrolytes of extracellular fluid present in appropriate concentration; appropriate osmotic pressure so that water balance of the patient will not be disturbed; temperature of the fluid of 38-39 degrees centigrade.

Since bacteria and viruses are not permeable through the cellophane membrane, the bath fluid does not have to be sterile but merely clean. Distilled or tap water is used to prepare the bath fluid.* Concentration of the individual electrolytes of the bath fluid is adjusted with due consideration for the electrolyte pattern of the patient's blood and his clinical picture. If, for example, removal of potassium is desired for treatment of hyperpotassemia, potassium in the dialyzing solution is reduced or may be omitted entirely. An example of the usual composition of bath fluid is given in Table I.

Time required for preparation for vividialysis with the artificial kidney varies depending upon the type of apparatus and availability of personnel. At least two to three hours are required. A radial artery or a greater saphenous vein and an antecubital or a cephalic vein for insertion of catheters are exposed by cutdown, and approximately an hour should be allowed for hemostasis of such incisions before heparin is administered at the beginning of dialysis. Three pints of blood less than 24 hours old are required to prime the artificial kidney. A patient who received many blood transfusions or who has had a blood transfusion reaction may require considerable time for typing and cross matching. Sometimes it may be difficult to obtain fresh blood on short notice. Therefore, a request to a blood bank should be given well in advance. The total time required for vividialysis is approximately eight to ten hours, including six hours run on the artificial kidney.

Optimally dialysis should be on an elective basis, and this can be done with the cooperation of the referring physician and close observation of the patient to anticipate the necessity for dialysis. Only rare patients, in fact, require emergency dialysis.

Use of the Artificial Kidney in Acute Renal Failure

Vividialysis with the artificial kidney is no longer an experimental procedure. In most large medical centers it is a standard hospital practice in the management of acute renal failure and some severe drug intoxications. The expense and cumbersome methods with earlier equipment have been partly obviated with the development of the twin-coil artificial kidney by Kolff et al.[3]

The artificial kidney is an integral part of medical management, and this over-all management of acute renal failure will be outlined briefly. Modern concepts of the management of renal failure are the result of better understanding of its pathophysiology and increased knowledge of electrolyte and water metabolism. Although causes of acute tubular necrosis are variable and numerous, its clinical course is fairly uniform—sudden loss of kidney function with severe oliguria which may last from a few days to three weeks and return of urinary flow with gradual improvement of renal function.[7] The principles of management of acute renal failure are: maintenance of water and electrolyte balance, including adequate supply of calories and avoidance of stress; extrarenal measures for correction of disturbance of body fluid composition, when indicated, such as with the artificial kidney or by other means of dialysis. A few aspects of the management that are encountered commonly and are important will be described briefly.

Importance of fluid restriction during the anuric-oliguric phase of acute renal failure has been emphasized. Endogenous water production, which is derived from release of preformed water when tissue is metabolized and water of oxidation of fat, glucose, and protein may amount to a significant quantity.* Daily requirement of water, therefore, to maintain water balance, a constant ratio of total body water to body solids, requires 550 ml. (or 330 ml. per square meter of body surface area) per day, assuming that an average insensible loss of water is approximately 1,000 ml.[9] Clinical estimation of occult overhydration is difficult. This has to depend largely on history. The referring physician should furnish as complete information as possible regarding previous administration of fluid and electrolytes.

With oliguria, starvation, and acidosis, increase of potassium over the total potassium capacity† will lead to an increased serum potassium concentration. Breakdown of tissue due to trauma, catabolism of tissue, and utilization of stored cellular glycogen will release potassium ion and decrease potassium capacity.

* If tap water contains significant amount of calcium or sodium a correction has to be made in preparing a bath solution for the presence of such electrolytes.

* 100 gm. of muscle tissue releases 75 gm. of preformed water and 10 gm. of water of oxidation and 8.5 gm. of urea. Breakdown of 100 gm. of fat tissue releases 35 gm. of preformed water and 72 gm. of water of oxidation.[8] Theoretically complete oxidation of 400 gm. of glucose administered to a patient will produce 234 gm. of water.

† Defined as: "the sum total of all anions and other chemical groups outside the extracellular space capable of binding or holding potassium ion."[10]

A possibility of such endogenous potassium intoxication in crush injury was first suggested by Bywaters.[11] Elevation of serum potassium is reflected by characteristic electrocardiographic changes. This cardiotoxicity of potassium ion has immediate clinical significance since the progressive elevation of serum potassium eventually causes cardiac arrest. There is no direct correlation between serum potassium concentration and the electrocardiographic pattern, but a progressive change of potassium concentration parallels the electrocardiographic changes.[12] Therefore, serial tracings of the electrocardiograph offer the best information of the net effect of hyperkalemia and other concomitant acid-base disturbances. Where means for measurement of serum potassium are not readily available, serial electrocardiographic tracings are helpful.

In acute renal failure plasma CO_2-combining power or bicarbonate level correlates fairly well inversely with serum potassium concentration, and this should be measured in conjunction with the electrocardiographic tracing for evaluation of potassium intoxication. The earliest sign of hyperkalemia is an increase of amplitude and/or tenting of T waves.[13] Electrocardiographic changes of hyperkalemia may not be typical in the presence of acute cor pulmonale, pericarditis, hypertrophy of ventricle, block, or myocardial infarction.[13] Sinus arrest is an indication of advanced potassium intoxication and a warning sign that terminal electrocardiographic changes with disintegration of QRS complexes, sine waves, and cardiac arrest may occur within several hours. With the disappearance of P waves due to hyperkalemia, vividialysis should be planned without delay.

The approach to the treatment of hyperkalemia may be outlined as follows: increase of total potassium capacity with infusion of glucose and insulin and decrease negative nitrogen balance with testosterone;[14] use of antagonists to potassium ion, such as sodium and calcium; correction of acidosis with alkalinizing agents, i.e., sodium bicarbonate or lactate; extrarenal removal of potassium with cation exchange carboxylic resins through the gastrointestinal tract; and vividialysis. All of these measures except for dialysis will eventually fail in a closed system with anuria or severe oliguria. Vividialysis with the artificial kidney offers the most efficient means of correction and its effect may last for days.[15] Improvement of hyperkalemia following glucose-insulin-lactate infusion may be striking, but the duration of its effect is only five to six hours. This treatment should be carried on continuously lest rebound rise of serum potassium may occur. This is an effective way to tide over severe potassium intoxication until vividialysis becomes available.[15, 16]

The artificial kidney has an established place in the management of acute renal failure—one of the major medical emergencies. In acute tubular necrosis (lower nephron nephrosis), necrosis of renal tubules is a reversible process if sufficient time is given for regeneration. Life can be prolonged during this critical period with the use of the artificial kidney.[17, 18, 19, 20] Conventional methods of therapy are frequently insufficient to limit the rapid progression of uremia.[20, 21] In the Korean War, of 80 per cent who survived initial trauma and received medical care, 0.5 per cent developed posttraumatic renal insufficiency. With the establishment of a Renal Insufficiency Center and use of the artificial kidney, over-all survival rate was increased from 10 or 20 per cent to 47 per cent. Thus far, although experience is limited to the Korean War, potential value of the artificial kidney in military medicine is apparent.[22] With increased survival from initial trauma by improvement of medical care, more patients may later develop posttraumatic renal insufficiency.

Indications for Use of the Artificial Kidney: There are no rule-of-thumb indications for use of the artificial kidney. It is obvious that a prerequisite to consideration for its use is chemical derangement of blood, since what dialysis accomplishes is primarily a correction of blood chemistry alterations. Kolff's criteria[23] are: serum potassium of over 7.0, plasma bicarbonate of less than 12 mEq/L, and blood urea of 300 to 400 mg. per cent (BUN 140-190 mg. per cent). In general there is no close correlation between the symptomatology of uremia and blood concentrations. This is more apt to be true in chronic uremia than in acute uremia in which chemical disturbances of blood, more importantly the rate of deterioration, may be a good index of severity of uremia. In addition to blood chemical abnormalities, symptoms and signs of uremia must be taken into consideration such as clouding of sensorium or coma with inability to clear the air-way by coughing, intractable nausea and vomiting, signs of neuromuscular irritability, and dyspnea.

In emphasizing early timely use of the artificial kidney, dialysis is advocated on the fifth day of anuria-oliguria when clinical signs of uremia appear or, if those are absent, on the sixth day when anuria-oliguria continues.[24] Such rigid criteria may be debatable but are supported by the fact that when anuria-oliguria continues beyond the first week the majority of patients will become ill with clinical signs and symptoms of uremia and the time of death cannot be predicted.

Effect of Vividialysis: Abnormal pattern of the blood chemistry in uremia will be restored toward normal immediately following the dialysis. Metabolic acidosis will be corrected by increase of bicarbonate and increase of total base. Nitrogenous waste products

may be reduced to less than 50 per cent of the predialysis level.

Relief of symptoms and signs of uremia will be maximal 12 to 24 hours after the dialysis. Nausea and vomiting, dyspnea or tachypnea, and neuromuscular irritability are relieved. Improvement of mental status may be striking. Uremia-like symptoms due to severe infection or sepsis should be separated from those due to uremia,[25] and there is no reason to believe that the former will respond to vividialysis. If there is uremia and concomitant sepsis, removal of uremic retention products favorably influences the latter, however.

Clinical improvement following the dialysis may last for only two to three days or may last until recovery, although deterioration of the blood chemical pattern may continue further.

Clinical Experience at the University of Kansas Medical Center: Since a Kolff twin-coil artificial kidney became available at the University of Kansas Medical Center in January 1957, 11 vividialyses on eight patients with acute renal failure were performed by one of us (W. H. T.). The patients' ages ranged from 2 to 81 years. Three recovered. Of those who died, three showed acute tubular necrosis, one periarteritis nodosa, and one nephrosclerosis. Patients were hospitalized at the Medical Center or at the Kansas City Veterans Administration Hospital. They were referred for vividialysis, after which they were returned to their original services where further management was continued. Thus the sources and medical management for those eight patients are not necessarily uniform (Table II).

Four of the present series were treated with the artificial kidney within five days after onset of anuria or oliguria (in Case 4 the exact duration of anuria was not certain since the patient was comatose on admission and his history was not clear). All of those patients required emergency dialysis because of acute endogenous potassium intoxication. Case 2 sustained a cardiac arrest due to hyperkalemia and was restored to normal sinus rhythm by prompt cardiac massage and dialysis.[16]

Blood urea nitrogen concentrations in this group at the time of dialysis were 164, 191, 220, and 280 mg. per cent while plasma bicarbonate values were 6.8, 8.0, 7.0, and 6.8 mEq/L respectively. All except Case 5 had other disease. Case 5 recovered. It is apparent that patients in this group that required early dialysis had severe uremia with rapid progression.

TABLE II

PATIENTS WITH ACUTE RENAL FAILURE TREATED WITH THE ARTIFICIAL KIDNEY

Number of Patients	*Initials*	*Age*	*Sex*	*Duration of Oliguria*	**Oliguric Day of Vividialysis*	*Potassium Intoxication*	*Apparent Principal Cause of Acute Renal Failure*	*Secondary Factors and Associated Disease*	*Outcome*
1	EG	42	m	18	6 12 16	x	Transfusion reaction	Empyema of left chest	Died suddenly on 23rd day, in diuretic phase, of (?) heart failure
2	JL	29	m	5	3	x	Postoperative renal shutdown	Reticulum cell sarcoma of abdomen	Died suddenly of cardiac arrest, hyperkalemia
3	NG	63	f	14	9 13		Shock	Fracture of hip Cerebral edema	Died of intracranial hemorrhage
4	JS	81	m	5	3	x	? Bronchopneumonia Nephrosclerosis	Coma and shock	Never recovered after dialysis
5	LM	27	m	5	4	x	Severe vomiting		Recovered
6	EH	64	m	9	3	x	Periarteritis nodosa	Bronchopneumonia	Died of uremia
7	JH	2	m	10	9		Unknown		Recovered
8	SR	21	f	14	9	x	Postpartum renal shutdown		Recovered

* Oliguria: daily urinary output of less than 400 ml.

One patient would probably have been saved if dialyses were repeated earlier (Case 2). He died of the second cardiac arrest due to hyperkalemia while a second dialysis was being prepared.

Four patients, representing seven dialyses, were treated with the artificial kidney between the sixth and tenth day after onset of anuria, and they were still oliguric at that time. Two patients who were not dialyzed until the ninth day of oliguria recovered. They were free of associated disease or complication. Two patients who died had more than one dialysis (three dialyses in Case 1 and two dialyses in Case 3). Case 1, who suddenly collapsed and died on the 23rd day after the onset of anuria, when his daily urinary output was 2,300 ml., probably died of cardiac failure. Autopsy did not reveal the cause of his sudden death. Case 3 died of cerebral hemorrhage which probably had been aggravated by heparinization and hypertension incident to vividialysis.

Illustrative Case Reports

The following two patients are described in detail because they represent common problems which are encountered in practice and reflect the possible benefits from vividialysis.

Case 7 (58-9902). A 2-year-old boy was admitted to the University of Kansas Medical Center on July 15, 1958 because of oliguria of five days' duration. The child was apparently well until two weeks prior to admission when he had a cold with severe cough. Six days prior to admission the mother noted a rash in the child's mouth, and he had exacerbation of the cough. He received a penicillin injection. The following evening he started vomiting all foods and fluids except water. The next day he received another dose of penicillin. Vomiting continued and the child was not urinating, so he was admitted to a hospital. The vomiting and anuria persisted and he was transferred to this hospital.

The child was born by breech delivery and the neonatal course was without incident. He gained weight well and began taking solids at six weeks. He had many colds during the first year. Development had been normal. He was immunized with DPT and received polio immunization three times. He had never had serious illness. The mother was told that the child had albumin in his urine when he was seven months of age. There were no other siblings and the parents were healthy. The child received castoria or castor oil frequently for constipation.

On admission to the Medical Center, the child appeared well nourished and well developed, pale, irritable, and acutely ill. His weight was 26 pounds. The face appeared slightly puffy, and there was slight periorbital edema. No rales, but coarse rhonchi were heard throughout the lung fields. Heart and abdomen were negative. There was one plus puffiness in the extremities but no pitting edema. Neurological examination was negative.

Urinalysis revealed alkaline urine with trace of albumin, trace of sugar, some bacteria, and occasional pus cells per high power field. Urinalyses were obtained daily throughout the hospital course. Specific gravity ranged from 1.005 to 1.012; albumin was two plus on one sample, but the remainder showed only a trace of albumin; sugar was predominantly negative. Microscopic examinations showed many casts, both white cell and hyaline and there were a few white cells in each specimen. At no time were red cells observed.

Blood count on admission was: white cells 8,150 with 67 per cent polymorphonuclears, 27 per cent lymphocytes, and three per cent monocytes. Hemoglobin was 11.3 gm. per cent and hematocrit was 34 per cent. BUN was 90 mg. per cent, bicarbonate 14 mEq/L. On July 17, 1958 serum total protein was 4.0, with albumin 2.62 and globulin 1.38 gm. per cent. Nose culture on July 16, 1958 grew hemolytic Staphylococcus aureus, coagulase positive, and H. influenza. Throat culture revealed scant growth of H. influenza. Chest x-ray was normal. Antistreptolysin O titer was 50 on July 17, 1958.

The patient remained afebrile throughout the hospital stay. On July 18, 1958, the eighth day of oliguria, he appeared slightly confused. At this time serum sodium was 115 mEq/L, bicarbonate was 12.4 mEq/L, and the BUN was 120 mg. per cent. He was still oliguric and was treated with vividialysis on the ninth oliguric day. Dialysis was performed with one cellophane coil of the twin-coil artificial kidney for four hours. Blood was drawn from the inferior vena cava through the left greater saphenous vein to the dialyzer and was returned to the left antecubital vein. The child was lightly sedated with intravenous secobarbital during the procedure. He was awake during the latter part of the dialysis and was cooperative. The total heparin administered was 40 mg., and there was no hemorrhage at the cutdown sites. Coagulation time with modified Lee-White method was measured at intervals and was maintained at less than 17 minutes. The hemoglobin was maintained at 13.7 gm. per cent and hematocrit at 40 per cent (MCHC 34.2) by repeated measurement of hemoglobin and hematocrit and maintenance of fluid balance. The blood pressure was normal throughout. Plasma concentrations at the end of the dialysis were sodium 134, potassium 4.4, calcium 6.0, chloride 92, inorganic phosphorus 2.2, and bicarbonate 18.2 mEq/L. The BUN was reduced to 33.4 mg. per cent (Figure 3.)

Following the dialysis the child appeared more alert; appetite seemed to be increased and there was

no vomiting. Thirty-six hours after the dialysis he passed 795 ml. of urine over 24 hours, and from then on daily urinary output increased steadily. In spite of the onset of diuresis his blood urea nitrogen continued to rise again and reached a peak of 107 mg. per cent on the 13th day and then steadily decreased and reached a normal value on the 20th day. Clinically, after the dialysis, he did well and was discharged on July 30, 1958.

The cause of oliguria in this child is not known. It is not likely that he had an acute glomerulonephritis since there were no red cells nor significant casts in the urine. There was no history of ingestion or exposure to any known nephrotoxic agents. Dehydration and loss of electrolytes due to vomiting might have been the cause, but the history did not support this etiology. Whether penicillin had anything to do with the oliguria, such as a sensitivity phenomenon, is only a matter of speculation. Also it is not certain that he had an acute exacerbation of chronic glomerulonephritis.

Robinson's review[26] of the literature revealed that the incidence of acute anuria due to acute tubular necrosis of unknown cause is high in the pediatric age group. In view of the further progression of azotemia following the dialysis despite good diuresis, the uremia would have been more severe and management would have been more difficult if the progress of uremia was not halted on the ninth day with the vividialysis. Dialysis may not have been essential to this child's survival, but it was a useful adjunct in management.

This experience confirms the fact that the artificial kidney can be used safely in small children.[27, 28]

Case 8 (58-17006) (Figure 4). A 21-year-old gravida 2, para 2, white housewife was transferred to the Medical Center from another hospital on December 8, 1958, five days after onset of anuria. Five days prior to admission, when she was eight months pregnant, she had vaginal bleeding. Four hours later she delivered a stillborn fetus at the previous hospital. There was no history of excessive blood loss or episodes of hypotension or blood transfusion at labor. Following the labor she was given fluid by hypodermoclysis. She noted that she did not pass urine after the delivery. She did have back pain on the following day, but it was improving by the time of transfer to our hospital.

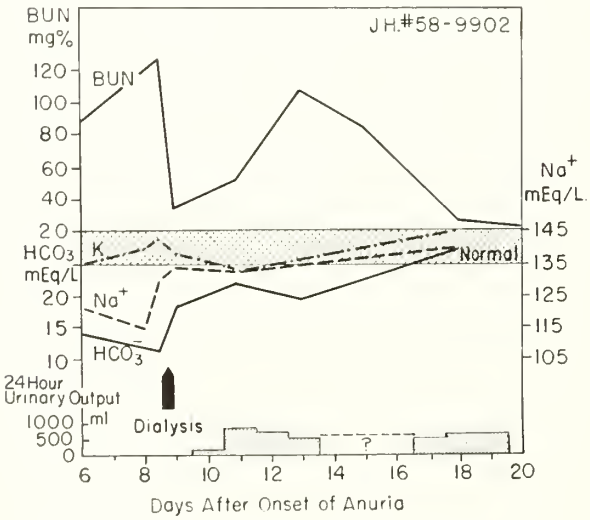


Figure 3. Clinical course of Case 7, J. H. (58-9902).

She gained 12 pounds during the pregnancy and noted puffiness of her own face during the last two or three months. There was no albumin or sugar in the urine or history of hypertension. There was no history of renal disease or any complication during her previous pregnancies. She took iron and calcium pills which were prescribed by her physician.

Examination revealed a well developed and nourished obese white woman who appeared chronically ill and alert. She had hacking cough. Temperature was normal, blood pressure was 130/85, and the pulse was 90. Fundi oculi were normal. There were inspiratory squeaks in the upper one-third of the lung fields, but no moist rales. There was a grade 2 systolic murmur over the apex and left sternal border. Pulmonic second sounds were louder than the second aortic sound. No friction rubs were heard.

Abdominal examination revealed tenderness in both flanks and the right kidney was thought to be palpable, but subsequent examination could not confirm this finding. The liver was felt 2 cm. below the right costal margin. There was two plus edema of the lower extremities. Skin was dry and pale. Babinski's sign was absent and deep reflexes were normal.

Urinalysis revealed acid reaction, specific gravity 1.005, albumin one plus, and negative sugar. There were 6 or 8 pus cells per high power field. White cell count was 11,300 with 81 per cent polymorphonuclear, 15 per cent lymphocytes, and 4 per cent monocytes. Hemoglobin was 4.8 gm. per cent and reticulocytes were 10.2 per cent. Serum iron was 165 gamma per cent. Total serum bilirubin was 0.73 and direct bilirubin was 0.22 mg. per cent. Total serum cholesterol was 250 mg. per cent with 61 per cent esters. Serum albumin was 2.93 and globulin was 1.95 gm. per cent. Direct and indirect Coombs tests were negative.

Bone marrow biopsy revealed hypercellular marrow. BUN was 175, creatinine 14 mg. per cent. Serum sodium was 132, potassium 6.2, chloride 91, and plasma bicarbonate 10.5 mEq/L. An electrocardiogram revealed tenting of T waves, and a chest x-ray film was normal. Urine culture on December 14, 1958 revealed heavy growth of Enterococci and a few E. coli.

The patient was placed on 160 gm. carbohydrate,

20 gm. protein diet, and fluid intake was restricted to allow daily weight loss. On this regimen she lost 5 pounds in 24 hours. From the time of admission vomiting and nausea persisted. Daily urinary output ranged from none to less than 300 ml. She had epistaxes occasionally but not of serious degree, and these were controlled with an anterior nasal pack. She remained mentally clear and cooperative.

On the morning of the ninth day after the onset of oliguria the patient was noted to be "jittery" with tachypnea of 30 to 40. There were fine muscular twitchings of the upper extremities whenever she moved. Babinski's sign was positive bilaterally and quadriceps reflexes were hyperactive. These signs of neuromuscular irritability were not present on the previous day. An electrocardiogram at this time revealed a widening of QRS complexes and increased amplitude of tented T waves for the first time. Blood concentrations at this time were as shown in Table III, before dialysis. Because of her severe azotemia, signs of increased neuromuscular irritability, nausea and vomiting and further deterioration shown on her electrocardiogram, vividialysis was performed in the afternoon.

The dialysis was performed for six hours with 110 mg. of heparin which was administered only at the beginning of the procedure. There was some oozing of less than 200 ml. of blood from the cutdown. During the later course of the dialysis she started to have nasal bleeding, and this was controlled with an anterior nasal pack. The blood pressure was stable throughout the procedure. Effect of vividialysis is shown in Table III. Total urea nitrogen removed by this dialysis was 85 gm. (urea 182 gm.). Hematocrit was increased from 10 per cent to 21.8 per cent and the hemoglobin from 5.6 to 9.9 gm. per cent.

She appeared improved clinically on the following day. However, nausea and vomiting did not improve until 24 hours later, when she complained that she was hungry. Subsequently she continued to feel fine and ate well. She became markedly anemic with a hemoglobin of 5 to 6 gm. per cent, in spite of blood transfusions. There was no excessive external blood loss except for vaginal spotting which was not more than that usually seen postpartum. A dilatation and curettage was done on January 1, 1959. She was discharged on the 35th day after the onset of oliguria to be followed as an outpatient.

This patient represents a not uncommon problem —a postpartum renal shutdown. The cause of her renal failure is not known. Vividialysis was not performed until the ninth day of oliguria when signs and symptoms of advanced uremia appeared. By this time she had all the indications for dialysis; BUN was 292 mg. per cent (urea 624 mg. per cent), serum potassium was 7.9, bicarbonate was 9.9 mEq/L, and uremic symptoms were present. A small urinary output, up to 300 ml. by this time, was neither sufficient to relieve uremia nor evidence for the onset of diuresis. Probably this patient would have been in more serious trouble with convulsions or potassium intoxication if her uremia had been allowed to progress beyond this time. Single dialysis was effective in preventing further deterioration. The remainder of her course was uneventful although an abnormal blood chemistry pattern developed after diuresis (Figure 4.)

The indication for the use of the artificial kidney in acute potassium intoxication is so clear-cut that none will demur its use. The two cases were presented to emphasize that, aside from treatment of potassium intoxication, a protracted course of anuria-oliguria following acute renal failure can be made benign, possibly preventing common complications, with the timely incorporation of the artificial kidney into the scheme of conservative management. According to the criteria of indication by others, our dialyses were late in the course of oliguria and their indications were based upon the over-all clinical picture. A decision to employ the artificial kidney and when, as well as the possible benefit from such procedure, should be considered in conjunction with the man-

TABLE III
RESULTS OF VIVIDIALYSIS WITH THE ARTIFICIAL KIDNEY, S.R. CASE 8 (58-17006)

	Before Vividialysis		*After Vividialysis*	
BUN	292	mg %	107	mg %
Creatinine	23	mg %	9.5	mg %
Uric acid	25	mg %	9.2	mg %
Na	138	mEq/L	141	mEq/L
K	7.9	mEq/L	6.1	mEq/L
Ca	3.5	mEq/L	5.2	mEq/L
HCO_3	9.9	mEq/L	21.8	mEq/L
HPO_4	8	mEq/L	4.1	mEq/L
Cl	89	mEq/L	97	mEq/L

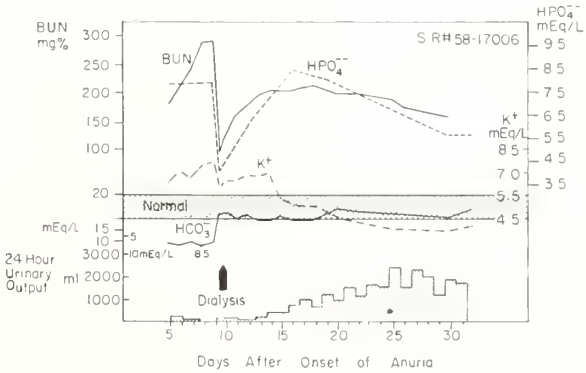


Figure 4. Clinical course of Case 8, S. R. (58-17006).

agement of each patient. Progress of uremia, secondary factors such as infection or shock or associated or underlying disease, should be carefully evaluated. Use of the artificial kidney should not be postponed as a last resort.

Treatment of Acute Poisoning, not Primary Nephrotoxin, with the Artificial Kidney

The artificial kidney is an efficient means of treatment of poisoning with some drugs. A comprehensive review of this subject was published recently.[29] Dialysis is useful in poisoning with drugs that have a low molecular weight; are permeable through the cellophane membrane; exist in plasma in the free state or are only loosely bound with plasma protein; are freely diffusable between the extracellular fluid compartment and other body fluid compartments, or which reach chemical equilibrium quickly. The artificial kidney has been reported to be effective in treating poisoning due to phenobarbital,[30, 31, 32] amobarbital,[30, 32] secobarbital,[32] pentobarbital,[32] acetylsalicylate,[1, 33, 34] methylsalicylate (wintergreen oil),[29] bromide,[29, 35, 36, 37] potassium thiocyanate,[38] diphenylhydantoin (Dilantin),[29, 39] strontium and radiocalcium,[40] tritium,[41] glutethimid (Doriden),[42] and ammonia.[43]

Some of the commonly used drugs should be removable with the artificial kidney but have not yet been reported. These are: barbituric acid (Mysoline, Metharbital); mesantoin and phenacemids; chloral hydrate; methonium compounds, particularly with uremia induced by the use of these compounds in hypertensive patients.

Lowering of the temperature of the extracorporeal circulation system may be useful in severe pyrexia (i.e., salicylate poisoning) and oxygenation of 200 to 300 ml. of blood per minute may be a significant contribution in severe hypoxemia. The most ideal indication for vividialysis in barbiturate poisoning is that with phenobarbital or amobarbital.[32] Removal of salicylate by the artificial kidney is 20 times or more faster than normal kidneys functioning under optimal conditions.[29] Vividialysis is the most effective way of treating severe bromide intoxication. Unlike human kidneys, the artificial kidney does not selectively reabsorb bromide in preference to chloride.

Contraindication for Use of the Artificial Kidney

Necessity for anticoagulation with heparin during vividialysis tends to preclude use of the artificial kidney in patients with hemorrhage or its possibility, particularly hemorrhage into the central nervous system.[44, 45, 46] Hemorrhage was generally regarded as an unfavorable sign for use of the artificial kidney, particularly bleeding from the gastrointestinal tract.[2, 46] However, recent experiences of others[19, 20] and our own seem to indicate that this general view may need some revision. Among a series of our cases, hemorrhage due to hemostatic defect(s) associated with uremia was improved following dialysis. An emergency vividialysis was performed by the author for 4 hours and 20 minutes immediately following a thoracotomy and cardiac massage for cardiac arrest due to acute potassium intoxication.[16] A technique of regional heparinization[6] may reduce hazard of hemorrhage caused by heparin.

Thus a general view that hemorrhage in uremic patients is a contraindication for use of the artificial kidney should be evaluated in each individual case. It appears that there may be a hemostatic defect associated with uremia that may respond favorably to vividialysis rather than be a contraindication to such a procedure.

Vividialysis in Management of Chronic Renal Failure

Indication for dialysis with the artificial kidney in chronic renal failure is prospective relief of symptoms. With the best medical management currently available, slowly progressing chronic renal failure may reach a point where symptoms and signs of uremia may become refractory to treatment. Nausea, vomiting, and anorexia may lead to electrolyte and water imbalance and caloric intake may become unsatisfactory. Under such circumstances renal function may deteriorate further, and thus a vicious cycle sets in. Vividialysis may break this cycle by relieving symptoms and signs and by correcting acid-base imbalance. The patient may be restored to a state of satisfactory equilibrium and may be able to continue to live a comfortable and useful life within the narrow range of his renal function.

Management of acute exacerbations of chronic uremia due to stress, such as infection or surgery, may be effectively supported by vividialysis. Long-lasting clinical improvement, in spite of return of blood chemical abnormalities, is an occasional effect of dialysis in chronic renal failure.[47, 48] Unfortunately this clinical improvement following treatment with the artificial kidney is unpredictable. While patients with vascular diseases or severe hypertension or with poor urinary output are poor candidates for dialysis, occasional good results seem to warrant continued trials.

Referring the Patient for Dialysis

From the foregoing it is apparent that the artificial kidney can be one of the most useful means of management of acute renal failure by substituting for renal excretory function and by correcting acid-base imbalance. Although the clinical course of acute tubular necrosis is uniform, the onset of diuresis or sudden death is unpredictable, not only during the anuric-

oliguric phase but also during the diuretic phase. Consideration of vividialysis with the artificial kidney should be included in the over-all plan of management of every patient with acute renal failure. This by no means implies that all patients should be treated with the artificial kidney.

Regarding "conservative management versus use of the artificial kidney," it cannot be made more clear than the statement by Merrill,[46] "A fundamental misconception seems to be at fault; that there should be a choice between conservative measures and the use of the artificial kidney. Dialysis in the treatment of acute renal failure must be thought of as an adjunct to, rather than a substitute for, good conservative measures of management."

When the diagnosis is apparent, a center where an artificial kidney is in operation should be notified and personnel involved in the operation of the artificial kidney kept informed of the situation and further progress. Direct transmission of serial electrocardiograms by conventional telephone[49] will provide a convenient means of evaluation of potassium intoxication. After a period of initial observation and treatment for a few days, if it appears that progression of uremia is rather rapid, i.e., rise of serum potassium over 1.0 mEq/L or blood urea nitrogen over 30 mg. per cent over a 24-hour period, a tentative agreement as to circumstances under which arrangements will be initiated for dialysis or transfer of the patient for a final evaluation for dialysis may be made.

A small increment of urine output, i.e., 100-200 ml. over 24 hours in oliguric patients, does not necessarily herald an onset of diuresis. Even with a daily urinary output of 400-600 ml. the uremic syndrome may continue to progress. Increased urinary output may be a happy sign that diuresis is starting, but careful management must be continued since about 25 per cent of fatalities occur during the diuretic phase.[21] Patients with advanced potassium intoxication should be started on intravenous infusion of glucose-insulin and sodium bicarbonate or lactate solution, if this therapy is not contraindicated by pulmonary edema or hypertension, and this should be continued during his trip to the hospital. Such a patient may have to be accompanied by a physician and equipment for resuscitation. An artificial kidney map can be found in a recent publication which indicates the locations of artificial kidneys available in civilian hospitals throughout the United States.[50]

Other Methods of Dialysis in Management of Renal Failure

Peritoneal Dialysis: A method for peritoneal dialysis based upon a modification of one proposed by Grollman[51] has been described by one of us.[52]

Peritoneal dialysis may have occasional application in the adjunctive management of acute renal failure, chiefly for the correction of hyperpotassemia, with some correction of acidosis, water removal, and reduction in azotemia as well. Except for the concurrence of bleeding which would contraindicate necessary heparinization for hemodialysis, its use in preference to extracorporeal vividialysis can hardly be justified when a dialyzing apparatus and team are available, since possible complications of peritoneal dialysis are greater and efficiency is reduced.

Intestinal Perfusion: Intestinal perfusion has been employed to remove uremic metabolites and to maintain water and electrolyte homeostasis, as reviewed by Twiss[53] and more recently by Merrill.[46] Behavior of the intestinal mucosa as an active rather than a passive semipermeable membrane with regard to electrolytes has engendered some difficulty in the composition of perfusate solutions, but it has been shown that physiologic conditions for desired water and electrolyte transfers exist,[54] while sufficient nitrogen, chiefly as urea, may be removed in uremia to maintain over-all nitrogen balance with moderate azotemia. It is also well established that phosphate, uric acid, creatinine, and probably other larger molecule uremic metabolites are not removed in sufficient quantities to lower plasma concentrations significantly.

In acute renal failure, intestinal perfusion may be used to combat hyperpotassemia by removal of potassium and chloride and by producing some sodium absorption, together with removal of urea but not significant amounts of other uremic metabolites. Practical considerations such as nausea and vomiting limit its application, and gastrointestinal surgery, ileus, or any condition predisposing to gastrointestinal hemorrhage contraindicates its use.

While peritoneal dialysis or intestinal perfusion may have occasional application in acute renal failure where an artificial kidney and a dialyzing team are not available or are not feasible to employ, because the disease has progressed unduly or because transportation facilities are inappropriate, their use in preference to vividialysis with the artificial kidney on an elective basis can hardly be justified.

Isolated Jejunal Segment Perfusion in Chronic Uremia: With the best fluid-electrolyte and dietary management available today, some patients with chronic uremia will continue to progress and die of their disease. This may be considered to represent progressive decompensation of renal function, and any treatment measure which would afford even a small increment of benefit in removing uremic metabolites and in restoring water and electrolyte homeostasis should have a salutary effect on the clinical course.

For the past two years one of us (P. R. S.) has studied the clinical application of perfusion of an operatively isolated jejunal segment, comprising the proximal half of the small intestine.[55] This experience now consists of four patients, two of whom suc-

cumbed in uremia without more than slight and temporary benefit. The course of one of the two patients was complicated by the combination of overwhelming sepsis and uremia. The second patient, following an uncomplicated operative procedure, was observed to have only minimal exchange of water, electrolytes, and crystalloids across the intestinal mucosa during the isolated intestinal segment perfusions. This decreased exchange may have been related to marked arteriolosclerosis in the submucosal vessels, as demonstrated at autopsy.

One of these patients has been presented in detail elsewhere.[55] In this patient with progressive oliguria, maintenance of water and electrolyte homeostasis was feasible by appropriate adjustments of the perfusate composition. Application of this information permitted subsequent management for one month at home where 24 additional perfusions were done until anuria and fatal uric acid intoxication occurred.

Another patient, a 26-year-old girl with polycystic kidney disease, has also been reported previously.[52] This patient in whom an isolated jejunal segment procedure was performed 21 months ago, has had a gratifying course and perfuses her isolated jejunal segment once weekly at home. She continues to work full time as a secretary. An exacerbation of uremia due to pyelonephritis occurred six months ago and was accompanied by an elevation of the BUN to 170 mg. per cent with typical uremic symptoms and acidosis corresponding to uremia of this degree. By a combination of perfusion of the isolated jejunal segment and appropriate fluid-electrolyte and dietary management, the uremia regressed and she was discharged with a blood urea nitrogen of 40 mg. per cent. She is asymptomatic at present.

While it has no application to the management of acute renal failure, perfusion of an isolated intestinal segment appears to be the only method presently available for adjunctive management of progressive chronic uremia over a long period of time by the patient. Total renal function is not attained because of failure to remove adequate amounts of phosphate, creatinine, uric acid, and probably other larger uremic metabolites. It will otherwise defend the composition of the extracellular fluid and, indirectly, intracellular constituents, as well as body water, and will remove sufficient urea to maintain an acceptable nitrogen economy. The use of commonly available salts, sugar, and tap water, together with non-sterile perfusion carboys and tubing, makes it an inexpensive procedure. Discomfort related either to the presence of the isolated segment or to the perfusions has not been observed.

It is believed from our experiences thus far that this may be of benefit to young individuals with progressive renal disease. Polycystic kidney disease would appear to be an ideal condition to which isolated jejunal segment perfusion might be applied when renal decompensation and hypertension become evident on good management and before severe uremia has developed.

Acknowledgment

The support and encouragement of Dr. Robert E. Bolinger, associate professor of medicine, is gratefully acknowledged. Appreciation is expressed to Dr. E. Grey Dimond, Department of Medicine, and Dr. Daniel C. Darrow, Department of Pediatrics, for their cooperation and permission to include their patients in these case presentations.

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It is one of the marks of the cultured man that he presents a unity; he is not a humane man and a thinking man, but his humanity and his reason seem to be all of a piece, and so much of a piece that it seems important not to separate the one from the other—so that his humanity never overcomes his reason, nor does his reason ever replace his humanity, but both work in harmony and balance together.

—*Ashley Montagu*

PRESIDENT'S PAGE

DEAR DOCTOR:

The Kansas Medical Society has become one hundred years of age. I have selected the following five as the outstanding achievements in this period and cite them as the golden efforts from our past.

1. *The charter* on February 10, 1859, by the territorial legislature granted to the Kansas Medical Society "perpetual succession forever" toward the end that a better quality of medical care might be given to the people of this state.

2. *The Board of Medical Examiners* was created in 1879 to guarantee the public that in the future every licensed physician would have completed a minimum level of educational experience.

3. *The School of Medicine* established at the University of Kansas in 1879 to afford an opportunity for the young men and women of this state to prepare themselves for the practice of medicine.

4. *The Board of Health* was formed in 1885 recognizing a state responsibility over problems of sanitation and preventive medicine.

5. *Blue Cross and Blue Shield* were chartered in 1943 and 1945 to provide for the public the opportunity for protection against the cost of catastrophic illness.

As I look these over, I feel fortified by our accomplishments to challenge the critic to present any organization that has given more for the public benefit than has the Kansas Medical Society.

Very sincerely,

Thomas P. Butcher, M.D.

EDITORIAL COMMENT

School of Medicine Issue

For the 13th consecutive year, the March issue of the JOURNAL is a special University of Kansas School of Medicine number. The scientific content of this issue is composed entirely of contributions from the school.

Dr. W. Clarke Wescoe, dean, contributed the introductory article. Dr. Vernon E. Wilson, associate dean of the school and an associate editor of the JOURNAL, assembled scientific copy, a series of nine articles on diversified subjects, and wrote the thoughtful editorial which appears below. The tumor conference reported in this issue was provided by Dr. Robert E. Stowell, of the Department of Pathology and Oncology, who performs this function in alternate months throughout the year.

Not represented here, but not to be overlooked, is Dr. Jesse D. Rising, of the Department of Postgraduate Medical Education, who edits clinicopathological conference reports which appear in issues in which tumor conferences are not carried.

The Editorial Board expresses its thanks to these persons, to the authors who wrote papers for this issue, and to all others at the school who have had a part in making this issue a credit to the university and to the JOURNAL.

Educare

To bring up or educate is the definition of the Latin word *educare*. It is closely related to the Latin verb *educere*, to draw out. In this stem or root of the present word educate is found a lesson often forgotten by teacher, student, and practitioner alike.

Acquisition of factual information and skills (both of which have only transient value) is and must be a by-product of the truly educational program; it is, of course, the goal of a technical or training program. Medical education programs are a judicious and, hopefully, carefully planned blend of training and education with the basic theme being that of education while the superimposed pattern is that of training in factual information. This concept, unfortunately, is so old and accepted that it is often ignored in the actual program.

It is trite, yet apparently necessary, to say that the field of medical information, as are most other fields, is too vast to be comprehended by a single person. As the peripheries of available information are pushed farther out, it becomes even more evident that the standards of excellence in medicine cannot be even approximated by assessing the factual information possessed by the individual. Thus the test of "bringing up" students into adulthood in medicine must be derived from a new set of measurements for medical performance.

What are the obligations of a medical school? To oversimplify, they may be described as dual in nature, first and most important the responsibility to the future patients of the embryo physician and second to the future physician himself.

In the complex field of medical knowledge it is abundantly clear that no person, however talented, can possess all of the information in the most circumscribed specialty field. This is further complicated by the fact that the "truth" or latest word is constantly changing. Authors of a textbook of pharmacology and therapeutics recently spent eight years attempting to get a text in reasonably current form to the press. Finally in desperation they sent the book to press, accepting the fact that some sections would be outdated at the time it reached the student.

The protection of the patient, then, is dependent not upon the factual knowledge possessed by the physician but by his judgment or wisdom. This characteristic is best described as his knowledge of his own abilities and limitations with an interest so centered that he is quickly willing and anxious to seek out the best possible available help for the patient who needs more than he can offer. This type of discriminating ability is partly inborn but best taught by intelligent and requiring example.

On the other hand, the acquisition of technical skills and factual information may conversely be considered to be directed primarily toward the best interests of the physician with a by-product being improved service to the patient. The uninformed physician who possesses judgment or wisdom, as described, may starve to death, but he will do no harm personally and will do much good through the services of others which are attained by intelligent referral.

Transmissions of judgment as defined above and the stimulation of intellectual curiosity are then the components of medical education programs which can be called truly educational. The learning of educational techniques and establishment of good study habit patterns must be considered to be in the grey area between education and training. It can be simply stated that the true role of medical education is the cultivation of the talent and aptitude for discrimination, self-examination, and zest for new knowledge. The medical school should open this door and indicate the path and horizons, but the traveler himself must make it a life-long trip and very quickly attain a self-energizing status.—*Vernon E. Wilson, M.D., associate dean, University of Kansas School of Medicine.*

Nominations for Society Offices

The Nominating Committee of the Kansas Medical Society for the current year presents the following slate of candidates for Society offices:

President-Elect

Dr. Frederick E. Wrightman, Sabetha; Washington University School of Medicine, 1917; cardiology.

First Vice-President

Dr. Harold M. Glover, Newton; University of Illinois College of Medicine, 1916; surgery.

Second Vice-President

Dr. Norton L. Francis, Wichita; University of Nebraska College of Medicine, 1935; otolaryngology.

Dr. H. Penfield Jones, Lawrence; Harvard Medical School, 1931; surgery.

Dr. H. Preston Palmer, Scott City; University of Kansas School of Medicine, 1929; general practice.

Dr. Lloyd W. Reynolds, Hays; Ohio State University College of Medicine, 1934; surgery.

Dr. Edward J. Ryan, Emporia; University of Kansas School of Medicine, 1936; internal medicine.

Constitutional Secretary

Dr. George E. Burket, Jr., Kingman; University of Kansas School of Medicine, 1937; general practice.

Treasurer

Dr. John L. Lattimore, Topeka; Fort Worth School of Medicine, 1918; pathology.

A.M.A. Delegate, 1960-1962

Dr. George F. Gsell, Wichita; Rush Medical College, 1933; ophthalmology.

A.M.A. Alternate, 1960-1962

Dr. Cyril V. Black, Pratt; University of Texas, Medical Branch, 1930; surgery.

Dr. H. St. Clair O'Donnell, Ellsworth; Washington University School of Medicine, 1917; medicine and surgery.

Dr. Robert Sohlberg, Jr., McPherson; Northwestern University Medical School, 1934; general practice.

Additional nominations may be made from the floor at the time of election, during the 100th annual meeting of the Society.

L. S. Nelson, M.D., Chairman
Conrad M. Barnes, M.D.
Clyde W. Miller, M.D.
Haddon Peck, M.D.
Henry N. Tiben, M.D.

Reserve Status

Two memoranda from the National Advisory Committee to the Selective Service System were received recently by Dr. Byron J. Ashley, Topeka, who served as chairman of the Kansas Medical Advisory Board to Selective Service during and after the period of the Korean conflict. They are reproduced here to answer questions which have come up repeatedly.

January 2, 1959

The National Committee has voted to notify medical schools and hospitals that if any of their staff or faculty are members of the Ready Reserve, they and the individuals concerned should make note of the fact that they will be expected to go when called and not be declared essential to the institutions at the time such a call is made.

If any such individuals are now in essential positions—either on faculty or staff—they should request transfer from the Ready Reserve to the Standby Reserve; otherwise the Ready Reserve is not a Ready Reserve.

By making such transfer they will, of course, lose pay. They will not lose credit toward retirement.

This should be looked into at the present time and straightened out now rather than waiting for an emergency to occur. In other words, it is essential for the medical schools and the hospitals to determine the military status of the members of their faculties and staffs. In that way and only that way will they realize what their loss would be on the day an emergency is declared.

This obligation of members of the Ready Reserve to serve when called also applies to physicians in private practice. Only in very exceptional cases would such individuals be given consideration for delay due to essentiality.

January 19, 1959

Our recent Bulletin No. 7 concerning members of the Ready Reserve on faculty of medical schools and all hospital staffs is, of course, not limited to the field of Medicine but applies to the entire health area as well as all other areas, i.e., Engineering, etc.

In other words, it is not a special situation as far as Medicine is concerned but applies to every member of the Ready Reserve.

Jaywalking was costly in the United States last year—2,600 were killed.

Maternal Mortality Report

This patient, a 30-year-old, gravida 4, para 3, died in a small moderately well equipped rural hospital after the spontaneous delivery of an 8-pound stillborn infant. Labor lasted eight hours. The patient had been seen by a physician three times prior to the onset of labor. Prenatal workup was considered minimal. The blood serology was negative and the hemoglobin was recorded as having been 14 grams on an office visit to the doctor. Blood type and Rh factor were not determined. No record was made of the presence of fetal heart tones either before hospitalization or afterward.

At the time of delivery there was a little more than the usual amount of bleeding, but apparently 45 minutes later the bleeding became profuse. All efforts to stop the bleeding, including packing of the uterus, failed. She was given 500 cc. of dextran and Levophed to combat shock. It was noted that bleeding occurred from the gums, needle puncture wounds, and any other traumatized areas. Blood loss was estimated at between 2,500 and 4,500 cc. There was no blood available locally, and only a belated effort was made to type and cross match the patient. The blood obtained for that purpose was reported as uncoagulated three days after its withdrawal.

The certificate diagnosis was recorded as "postpartum hemorrhage due to hypoprothrombinemia, due to amniotic fluid embolus." This diagnosis is supported by the profuse uncontrolled hemorrhage from the uterus associated with spontaneous bleeding from mucous membranes and minor areas of trauma. It is substantiated by the fact that the patient's blood did not clot in vitro even after three days.

Failure of the blood to clot is due to a deficiency of fibrinogen. Treatment consists of giving fibrinogen, and the replacement of blood loss. The condition is not common, but it is more likely to occur in amniotic fluid infusion, abruptio placenta, and intrauterine death of the fetus, especially between the third and sixth months of gestation.

Committee opinion: The committee felt that the certificate cause of the death was correct and that the physician was in error in not recognizing the emergency and making every attempt to replace blood loss, and for not recognizing the specific coagulation defect and making an attempt to procure fibrinogen. It further felt that the hospital was at fault for not having blood and fibrinogen on hand.

Classification: Obstetric death—preventable.

One of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas.

THE MONTH IN WASHINGTON

Editor's Note. The following summary of Washington news was prepared by the Washington office of the A.M.A. for distribution to state and regional medical journals.

Contrary to the usual procedure in a first session, the 86th Congress this year already is getting on with its work, particularly in health fields. In past Congresses, not much is accomplished the first session, with most bills held over to the second, which always is an election year.

The session was only weeks old when action was under way. Here are some of the developments, portending enactment before adjournment of a number of bills:

1. After hearings, a subcommittee of the Senate Banking and Currency Committee reported favorably on a housing bill that contained provision for mortgage guarantees for proprietary nursing homes. Subsequently, the measure was passed by the Senate.

At this writing the House is at work on another housing bill that also contains the nursing home loan section. With House passage assumed, the question is whether the bill (containing more money than the White House wants spent) will be vetoed, and if vetoed whether it can be enacted anyway by two-thirds majorities in both houses.

2. Without bothering with hearings, the House Ways and Means Committee overwhelmingly approved the Keogh bill to encourage retirement plans for the self-employed. It acted in line with the committee's established procedure to quickly reapprove bills that passed the House the previous Congress, but not the Senate. The Keogh bill is identical with a measure that easily cleared the House last session but lost out in the Senate.

3. Driven forward by Chairman Carl Vinson of the House Armed Services Committee, legislation to extend the regular and doctor drafts four years rolled through the House. However, indications were the Senate would take its time and give careful consideration to the need for a four-year extension.

4. The Senate Labor and Welfare Committee, under the leadership of Chairman Lister Hill (D., Ala.), demonstrated its interest in legislation for the aged. Senator Hill named a subcommittee to make a full year's study of problems of the aged, taking in housing, employment, and recreation, as well as medical aspects.

Chairman of this subcommittee is Senator Pat McNamara, Detroit Democrat. Other Democrats are Senators John Kennedy of Massachusetts, Joseph Clark of Pennsylvania, and Jennings Randolph of West Virginia. Republicans are Senators Everett Dirksen of Illinois and Barry Goldwater of Arizona.

5. At the same time, three members of the standing health subcommittee of the Hill Committee, Senators Jacob K. Javits of New York, Clifford B. Case of New Jersey, and John Sherman Cooper, all Republicans, asked Congress to authorize a two-year study of the health problems of the entire population. If approved by Congress, the investigation would look into the quality and quantity of health services, problems of extending health insurance, special problems of aged and minority groups, and the distribution of health services.

Notes

Fifty-four Senators are supporting legislation that would project the U. S. farther into the international medical picture. It would set up an Institute of International Medical Research as part of NIH, establish an advisory council, and authorize spending of $50 million a year for research, part of it to go to foreigners in the form of grants.

Medicare has not been able to keep within the $72 million "ceiling" recommended by Congress for the present year. Through the Navy it is asking $6 million more. In addition, Army and Air Force will shift funds to meet the bill, estimated at $93.6 million. The budget asks $89 million for next year, in expectation that restrictions begun in October will bring a saving of between $4 million and $5 million.

Medicine has won an argument within the new Federal Aviation Agency. As a consequence, FAA's civil air surgeon will assist the administrator in setting standards for fitness, direct physical examination and inspection programs, advise on research needs, and evaluate all of FAA's medical personnel plans.

The President's health budget, now under scrutiny in Congress, is expected to be substantially increased. As an example of the White House efforts for economy, Mr. Eisenhower recommended $101.2 million for Hill-Burton hospital construction grants, in contrast to $186.2 million HB has for the current fiscal year.

Through the Civil Service Commission, the federal government is attempting to recruit physicians for service in this country and abroad. Salaries range from $7,510 to $12,770.

The Administration is pressing Congress to pass legislation giving the U. S. power to regulate coal tar and other colors in foods, drugs, and cosmetics. One objective is to require that manufacturers demonstrate that the colors are harmless before the products can be put on the market.

BLUE SHIELD

Student Enrollment at Kansas University

A new comprehensive health protection plan was made available to all full-time Kansas University students at the beginning of the second semester this year. It is underwritten by Kansas Blue Cross-Blue Shield, and, according to Dr. Franklin D. Murphy, chancellor at the University of Kansas, "will supplement the benefits of the present Student Health Service and provide considerable additional hospital-medical-surgical care."

Sponsored and endorsed by Kansas University All Student Council's Health Commission, this supplementary health plan is being made available as the result of efforts on the part of both faculty members and the students' organization.

Chancellor Murphy, in explaining to parents and students the addition to the health and welfare program of the University of Kansas, had this to say: "The Blue Cross-Blue Shield Plan was adopted after long and serious study of health insurance plans. It will provide protection for both single and married students, including dependents, at a nominal annual cost. It offers hospital coverage in addition to that already provided through the university's present program, as well as prescription drugs, diagnostic x-rays, and supplemental accident coverage.

"We emphasize," he went on to say, "that this coverage also includes protection off-campus and during the summer, and it will be provided at a cost much lower than that these same people would pay for any other outside program."

In Conjunction with Present Plan

The new plan, in conjunction with the hospital care already provided on the campus, will include almost complete coverage at an anuual cost of $17.50 for single students and $97.25 for family coverage.

Chancellor Murphy has pointed out that "this is probably the most complete and least expensive health protection program ever offered to students in this area. It is actually a greatly-extended health protection program for our students and their dependents."

Voted by Students

Officers of the All-Student Council at Kansas University gave enthusiastic approval to the program which will dovetail into the existing Student Health Service, after a survey indicated many students would be interested in purchasing such a program.

The new plan, purchased by the student, covers many of the phases of health protection not provided by the Student Health Service. It also covers dependents, which Kansas University's present service does not.

Laurence C. Woodruff, dean of students, pointed out that the present program limits in-hospital care to certain services in Watkins Memorial Hospital on the campus, while the new program offers almost complete coverage in Watkins Memorial or any other approved hospital. Out-patient services are extended under the new program, as well as coverage for dependents.

Dean Woodruff summarized, "This program has been carefully developed by a committee of faculty and students as best suited to the needs on our campus."

Unique for Blue Cross-Blue Shield

This is the first time that Kansas Blue Cross-Blue Shield has participated in a program of this kind for students and their families. Two other Kansas colleges, however, are enrolled in Blue Cross-Blue Shield on a "student only" basis. Enrollment of college students at Washburn University in Topeka and at St. John's Lutheran College at Winfield took place in the fall of 1957. In each of these schools the health protection program is for individual students and not for their families. Memberships for families there are available through the regular non-group type enrollment which Blue Cross-Blue Shield makes available on a continuous schedule.

Managing Editor Resigns

Miss Pauline Farrell, managing editor of the JOURNAL OF THE KANSAS MEDICAL SOCIETY since 1944, has resigned to become assistant registrar at the University of Kansas School of Medicine, Kansas City. She begins her new duties on March 16.

Smith Kline & French Laboratories announces the establishment of an independent research organization in Great Britain to supplement the firm's own extensive Research and Development Division in Philadelphia and to provide the company with a direct link to European science.

The new Smith Kline & French Research Institute of Great Britain will be headed by Professor William A. Bain, who has held the chair in pharmacology at the University of Leeds since that post was created in 1946. He will guide a staff of 40.

Smith Kline & French said the establishment of a research organization on the continent has been under study since the early 1950's. SKF has long been a leader in scientific exchange programs, and, for example, initiated early this year the first official exchange of pharmaceutical and medical research personnel with the Soviet Union.

Tumor Conference

Paraplegia in Hodgkin's Disease of the Dura

Edited by BONITA J. PETERSON, M.D.

Dr. Boley (Moderator): Involvement of the central nervous system by malignant lymphoma is a well recognized form of neurological disease. In both Hodgkin's granuloma and Hodgkin's sarcoma, the most frequent neurological lesion is an epidural tumor mass compressing the spinal cord. This complication is illustrated by the following case.

Mr. Neal (Student): This is the case of a 27-year-old white woman with known Hodgkin's disease for eight years. The diagnosis was made elsewhere by biopsy of an enlarged axillary lymph node. She was seen here shortly thereafter with enlarged left cervical and supraclavicular lymph nodes and a large, lobulated hilar mass. These were treated successfully with radiotherapy. She was then followed at regular intervals and enlarged lymph nodes were treated by radiotherapy as they appeared.

About 18 months ago she had back pain due to compression of the fifth and seventh dorsal vertebrae, presumably secondary to involvement of these vertebrae by lymphoma, and she has worn an orthopedic brace since then. Four months ago she again had back pain and there was radiologic evidence of destruction of the 12th dorsal vertebra and the adjacent portion of the 12th rib. This area was also treated by x-ray.

One week before admission she began to have numbness of her feet. The numbness rapidly progressed upward to her nipple line and was accompanied by muscular weakness of her legs. On admission she had difficulty rising from a supine position and walked with a broad-based ataxic gait. Vibration and position sense were intact, but there was a distinct sensory level with hypesthesia below D5. Her deep tendon reflexes were hyperactive. Her Babinski response was plantar bilaterally.

Dr. Davidson: Roentgenograms taken here 18 months ago showed approximately 50 per cent compression of the vertebral bodies of the fifth and seventh dorsal vertebrae with a developing kyphosis. Four months ago roentgenograms showed approximately 60 per cent compression of the fifth and 75 per cent compression of the seventh dorsal vertebra. Each appeared as a V-shaped structure and had a rather solid appearance as though the destructive process were stable (Figure 1). The new abnormalities at that time included destruction of the pedicle of the 12th dorsal vertebra on the right and of the adjacent portion of the vertebral body and articular surface of the 12th rib. No soft tissue masses were seen.

On this admission the above changes are again seen. There is no apparent progression of the destructive lesions except for a loss of the fifth dorsal pedicle on the left.

Dr. Williamson: When I first saw this patient, she was able to walk, although her legs were weak Radiologically and neurologically her lesion was at D5, and the logical explanation of her symptoms was compression of the spinal cord at this level by lymphoma. At that time I was trying to avoid a laminectomy, although, in retrospect, laminectomy might have

Figure 1. Roentgenogram showing compression of the fifth and seventh dorsal vertebrae with kyphosis.

Cancer teaching activities at the University of Kansas Medical Center are aided by grants from the National Cancer Institute, U. S. Public Health Service, and from the Kansas Division of the American Cancer Society. Dr. Peterson is a trainee of the National Cancer Institute.

been the treatment of choice. We debated this issue, and Dr. Tice began radiotherapy with the hope of obtaining the good result obtained on many previous occasions. However, within two days the patient became totally paraplegic, and we performed an emergency laminectomy. She continued to have total motor paralysis after surgery for about six days, and then motor return began. Dr. Tice, is edema the immediate response of the tumor to radiotherapy, and does that explain the results in this case?

Dr. Tice: I think this case illustrates the phenomenon of edema very well. She became obviously worse after her first treatment by a rather routine dose of 300r. Tumor enclosed in a bony cage, as in this case, can develop enough edema to increase significantly the pressure on adjacent structures.

After surgery we gave only 100r on each of the first two days and then increased the dose to 200r. After the larger dose, she became neurologically worse, and we decreased the amount to 100r. She now is getting 200r without untoward consequences.

Dr. Williamson: Since this patient is young and in good physical condition, and since her sensation was never completely absent, I expect her to recover motor function rapidly. She should be walking unaided in six weeks.

At surgery we found firm fibrous tumor wrapped around the spinal cord in the extradural space. The tumor was attached to the dura but could be stripped from it. The laminae of the third, fourth, and fifth dorsal vertebrae were removed. We did not attempt total removal of the tumor. In a case like this we remove only the dorsal portion to obtain decompression of the spinal cord and then rely on radiation to control the residual tumor.

Dr. Mantz: The specimen we received was a few small fragments of tissue consistent microscopically with the diagnosis of Hodgkin's disease made nine years ago. There are two components of the tissue: a highly cellular element representing tumor and a dense fibrous element representing fragments of dura. The cellular components include giant cells, occasionally multinucleate, with multilobulated nuclei, corresponding to Reed-Sternberg cells. The preoperative radiotherapy explains the relative paucity of lymphocytes throughout the stroma. In addition, edema is a factor reducing the density of the cellular components. Other cellular elements include eosinophils, polymorphonuclear leukocytes, plasma cells, reticulum cells, and spindle-shaped fibroblasts to complete the rather characteristic picture of malignant lymphoma of the Hodgkin's type. This particular tumor could be classified as a Hodgkin's granuloma.

Extradural lymphomas are not uncommon. Though they probably arise more frequently from adjacent bone, they may arise from reticuloendothelial deposits normally present in the extradural space and need not involve the adjacent bone.

Dr. Williamson: Of all extradural tumors, the most common is metastatic carcinoma. The second most common is lymphoma. In this hospital at present there are three patients with paraplegia secondary to lymphomatous involvement of the dura producing spinal cord compression. This, therefore, is not a rare complication of lymphomas.

Dr. Tice: We plan to give 2700r, hoping to destroy the tumor. Approximately the same amount was directed to the same area for treatment of bony involvement previously. Since there is little soft tissue intervening between the skin and the vertebral column, the patient may develop skin damage necessitating plastic surgery later.

Dr. Mantz: Concerning prognosis of malignant lymphomas in general, the upper limit of life expectancy usually cited is 18 years. Jackson and Parker have reported survivals as long as 24 years with Hodgkin's disease.[4] Therapy in this case has not as yet included nitrogen mustard and related alkylating agents which can be used when the limit of tolerance to radiation has been achieved. Therefore, this patient may have a few more years of relatively good life.

Dr. Tice: I am following perhaps six patients with Hodgkin's disease who have already survived 10 to 15 years. The frequent recurrences in the present instance would seem to indicate that the patient may soon succumb to her disease. Usually the course of the disease is shortened considerably by the advent of spinal paraplegia, but isolated patients have survived a year of two following this advent.[5]

Dr. Williamson: It is said that radiation is better than nitrogen mustard as therapy for single isolated areas of lymphoma. On the other hand, if the patient has systemic involvement with fever and generalized adenopathy, nitrogen mustard is the preferred treatment.[1, 2] An advantage of nitrogen mustard in the present instance might have been the absence of the initial edema obtained with radiation.

Craver suggests that when a patient with known malignant lymphoma presents himself with paraplegia of recent origin, or when he develops such symptoms as paresthesias and beginning loss of motor function, he should be regarded as having an emergency condition. Lumbar puncture and myelography are to be avoided, and laminectomy is not recommended. He suggests that appropriate radiotherapy should be planned, usually to be preceded by a full dose of nitrogen mustard in one injection. The so-called decongestant effect of the nitrogen mustard may help reduce the congestant effect of the initial dose of radio-

therapy.[3] Total paraplegia, as occurred in the present case, may thereby be avoided.

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Examination of Foreign Graduates

Results of the first world-wide American Medical Qualification Examination held September 23 in 30 United States examination centers and 30 foreign centers were announced recently by Dr. Dean F. Smiley, executive director, Educational Council for Foreign Medical Graduates, 1710 Orrington Avenue, Evanston, Illinois.

The foreign centers were established in Latin America, the Far East, the Middle East, and Europe.

Statistics reveal that of the 844 foreign-trained physicians taking the examination, 418 passed and will receive the ECFMG Certificate. According to the council, these physicians are certified as possessing medical knowledge reasonably equivalent to that expected of graduates of approved American and Canadian medical schools and as having satisfactory facility in the English language.

Examination results also indicate that 226 candidates came sufficiently close to passing, in spite of language difficulties, to earn temporary certificates which will qualify them to study not more than two years as interns or residents in U. S. hospitals approved for internship or residency training.

The American Medical Qualifications Examinations for 1959 are scheduled for February 17 and September 22. To be admitted to these examinations the candidate is required to present, three months in advance, an application and credentials confirming that he has had 18 years or more of formal education, at least four of which have been in a recognized school of medicine.

Other sponsoring organizations of the examinations are the Association of American Medical Colleges, the American Hospital Association, the American Medical Association, and the Federation of State Medical Boards of the United States.

Correction

A paper on "Dumping Syndrome—Recent Changes in Concept of This Common, Distressing, and Hence Important, Postgastrectomy Development," which was published in the January issue of the JOURNAL, contained one sentence which might be confusing. The author, Dr. J. Walker Butin, Wichita, notes that one word should be changed in a sentence appearing on Page 6, right-hand column, last paragraph, Line 9. The sentence should read "These increases in blood flow are of the magnitude of 1½ to 12 times control values, and the severity of the vasomotor symptoms seems directly correlated with the degree of such increase."

DEATH NOTICES

CLAIB BOSWORTH HARRIS, SR., M.D.

Dr. C. B. Harris, 83, Garnett physician who had been an honorary member of the Anderson County Medical Society since 1949, died in Trinity Lutheran Hospital in Kansas City, Missouri, on February 4. A graduate of University Medical College of Kansas City in 1906, Dr. Harris was honored by the county society on his 50th anniversary of practice in 1956. Among the survivors is a son who is also a member of the Kansas Medical Society, Dr. C. B. Harris, Jr., Garnett.

JACOB FRANKLIN GSELL, M.D.

A physician who served the Sedgwick County Medical Society as its first president in 1903, and the Kansas Medical Society as its president in 1937, Dr. Jacob F. Gsell, 85, died at Wichita on February 12. He had been in retirement since 1953 and was an honorary member of the Society.

A graduate of Rush Medical College, Chicago, in 1895, Dr. Gsell began practice in Richmond, moving to Wichita five years later. He was a member of the American Academy of Ophthalmology and Oto-Laryngology and a fellow of the American College of Surgeons.

Among the survivors is a son, Dr. George F. Gsell, Wichita, who specializes in ophthalmology.

Government Medicine

The Doctor and the Health Scheme in Great Britain

JOHN D. DOUGHERTY, M.D., ***Honolulu***

Much has been written about the entrance of the federal government into medicine. Even now, through the Forand Bill, an attempt is being made to legislate "free" medicine for the aged. With so much of medicine's future involved, the American Medical Association set up a fund for the preservation of the American approach to medical care.

With the thought of settling my own mind, I was grateful for the opportunity to view the British Health Scheme during the summer of 1957 at the height of the recent disagreement between physicians and the Ministry of Health. On my return, my colleagues showed such interest in my experience that I was encouraged to investigate the matter more fully, and I hope to have achieved an appraisal of the health scheme, its history, and its present problem with the physicians of Great Britain.

The British government first began to subsidize medicine in the 17th century[1] when foundling homes and lying-in hospitals were organized for the indigent. However, the Poor Law which incorporated these feeble gestures was found to be much more expensive than originally anticipated, and in some cases it encouraged people to seek relief at the expense of gainful labor.[2]

The next change of note in Poor Law policy came in 1834 when the government became explicit in discouraging unemployment, to the extent of making relief such an unpleasant form of existence that no one would choose it in preference to work.[3] Of significance to the medical profession of the day was the authority given to local commissioners who could provide care for inmates of local workhouses. However, the administration of pauper health immediately degenerated into political patronage, as was evidenced by this editorial comment:[4] "The powers conferred on the commissioners are literally frightful. Mr. McFarland Lewis, it seems, is a man who *does not forget his friends*, but it would be wise in him to refrain from indulging his feelings of partiality for a gang of monopolists and corruptionists, at the expense of justice and morality."

Later, in the 19th century, the first constructive and effective legislation finally appeared. Following a world wide cholera epidemic, the government realized that some aspects of disease were of national concern.[5] In 1875 a comprehensive public health law appeared with the first attempt at sanitation control.[6] Efforts made to curb infectious disease and the sudden spurt in medicine's ability to cure resulted in increased public consciousness regarding health. The first response on the part of the wage earner was to form closed panel health clubs.

The service of these panels was often perfunctory, and it was generally agreed that good medical care was not rendered.[7] Men became dissatisfied and, with universal male suffrage, their votes became of real concern in Parliament. In America, such men gained a sufficient increase in their real wages to enable them to purchase individual care.

But British labor had a different problem. Their real wages did not increase as did those of the American worker. And like wage earners the world over, they found that the cost of medicine rose in excess of their wage increases. They turned to the government for a solution, and in 1912 socialized medicine began in Great Britain.

David Lloyd George promoted the Poor Law of 1912 which was revolutionary in its benefits.[8] Among other things pertaining to unemployment, etc., the law provided that men earning less than 250 pounds per year were backed by the government in a National Health Insurance Scheme. Though well received by labor at the time, workers were soon dissatisfied[7] for: (1) care was provided only for the worker, not for his family, (2) the scheme did not provide for care beyond that of the general practitioner.

Thus, in 1942, labor turned again to the government. But this time they were not alone, for physicians found private cases few and charity patients many, imposing a great financial sacrifice upon the physician who practiced in an industrial area.[8, 9]

A commission[10] under the direction of Sir William Beveridge studied the entire social system and concluded that provision of an adequate social system required maintenance of the population from want. For this, three assumptions were listed: (1) children's allowances, (2) comprehensive health and rehabilitation, and (3) maintenance of employment. They further decided that whatever the method of acquir-

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This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Dougherty is now serving his internship at Tripler Army Hospital, Honolulu, Hawaii.

ing funds, in the final analysis, the average man could not bear the cost of the plan on a contributory basis. The answer was determined to be progressive taxation.

Why the British working man—and nation as well—failed to participate more fully in the industrial revolution has been a puzzle to many. The loss of colonies was a severe jolt as the importation of materials and foodstuffs from outside the Empire tended to deplete the nation's capital. That would be true unless exports brought back the same currency. To operate successfully under such conditions requires a great deal of industrial efficiency; but here Great Britain, with "make work" unionization and welfare states, is sadly lacking.[11]

An interesting article in the monthly newsletter of the First City National Bank of New York[12] compares the economic systems of Great Britain and Germany, notes the results since World War II, and arrives at the following conclusions: (1) *punitive* taxation of the most productive elements of society for the welfare of the marginal laborer, and (2) resistance to automation, which is another way of saying increased productivity of man. Both work to the detriment of the whole economic society with the marginal laborer ending worse off than before.

Whatever the cause, since the last war, Great Britain has been in a state of recurrent economic crisis. The natural result is that the government pays no more for any service than it must. While tradesmen have never been reluctant to strike and clerical workers to shift positions if the price is right, the government was forced to keep the wages of such occupations in tune with money cycles. But the doctor has no alternative, and, having an altruistic mind, hesitates to strike; thus, with no bargaining point, he has found little sympathy from the Ministry who did not intend to raise his pay until forced to do so.

To make matters worse, the doctor was economically behind the inflationary spiral to begin with, and the history of the present disagreement has many roots from the beginning of the Health Service in 1948.

When accepting the Health Scheme, the physicians did so on the basis of the Spens Report[13] which stated that pay should be based upon: "The normal expectation of general medical practice in the past and the desirability of maintaining in the future, the proper social and economic status of general medical practice and its power to attract a suitable recruit."

Feeling that the government intended to follow this principle, the profession accepted the issue on faith, not getting a contractual agreement from the government. Both government and doctors agreed upon 1939 as a base line from which to make adjustments according to financial trends. However, the physicians, expecting an increase of over 100 per cent of the 1939 figure, were stunned by the government's offer of 20 per cent. In order to settle the dispute, a court arbitration was agreed upon, resulting in 1952 in a 100 per cent increase.[14] Since this notable decision under Justice Danckwertz, the Ministry of Health has not allowed arbitration of renumeration.

By 1956 the monies being paid were the same, but, of course, bought much less. Repayment of expenses lagged far behind, and in April[15] the physicians petitioned the Ministry of Health for an increase of 24 per cent. A few months later they were given a curt refusal and were told they should ask for what they felt they could get, not what they deserved.[16]

In November of 1956 the Ministry stated that doctors had no legal grounds for an increase;[17] if they disagreed with this ruling, they could take the matter to court.

In December the physicians acknowledged the lack of legal grounds and, seeing that further appeal was useless, in February announced their intention to strike if there were no arbitration.[18] Soon after this move, the government began to show some sympathy for their plight and set up a Royal Commission to study the issue.[19] The doctors felt that although the terms of reference[17] were slanted against them, the best course would be to hear the commission's recommendations before planning further action. They were encouraged to follow this course by the commission's assurance that all possible haste would be made.

Thus, the commission was organized in March, 1957, almost one year after the doctors first petitioned for higher pay. This commission is *still* considering evidence at the time of this writing!

At the same time, the ever more intimate relationship between government, physician, and patient was being carefully ignored by the American practitioner. This may be so because in spite of all the "free" care being provided by the government, the control that usually accompanies such funds has not yet appeared. Perhaps a fuller appreciation of the freedom of practice in the United States might be gained from the following illustrations of medical practice in Great Britain. A general practitioner, on completion of his training, has four choices: (1) independent practice, a form of medicine practiced by less than 5 per cent of Great Britain's physicians, most of whom deal with the highest income groups; (2) the foreign service; (3) the armed forces, and (4) the National Health Scheme.

It is the latter to which the young man most frequently turns and is given a list of available positions. Should he prefer to practice in a locality which the directors consider sufficiently staffed, the health serv-

ice requires him to make another choice. Then, if he is willing to assume the burden of building two practices, he is employed at a suggested position while waiting for an opening at the preferred location.

Once established, the generalist is almost completely limited to out-patient, house, and emergency care, a doctrine which encourages a form of caste society that leaves little challenge to any but the specialist who is placed at the top.

However, not all is well with the specialist. When the government took over the hospitals, it set up a staff quota which was considered sufficient to provide specialist care. At that time the older, more established physicians chose to remain in private practice, having only part time consultancies with the health service.

The full time posts were then filled by young men, just finished with their residencies, who saw an opportunity to practice the highest standard of medicine with a corresponding level of income and security. These specialists now constitute a serious block to the ambitions of young men only a few years behind.[20, 21]

Since most positions will remain filled for several years, succeeding aspirants have remained as senior house officers at a salary of one-third to one-half that of the full time consultants.

While these illustrations are hardly flattering to the health service, they echo the complaints of most doctors interviewed. It was difficult to find a *recent* example in which the Health Scheme worked to the betterment of the physicians. None the less, most of the doctors agreed that things were going badly for the public until the government stepped in. In Great Britain a substantial proportion were unable to actually pay for their medical care.[7] Unlike the United States, this number was so large that part time and municipal charity, as practiced here, was unequal to the task. The Health Scheme, by paying for all medical care, took up the slack, and for a time both doctors and patients were provided for.

The public has remained satisfied, the doctors have not. They have no method of adjusting their salaries to economic cycles. Such measures as the threatened strike may yield pay increases, but certainly they do the profession no long-term good.

Their supervision by lay administrators has been a source of grief to many clinicians. From the outset, the Health Ministry has been primarily concerned with the public's immediate health, remaining somewhat apathetic toward the needs of physicians. Such a position was felt to produce prompt results in patient care, but at the same time it fostered dissatisfaction within the profession and certainly made medicine less desirable as a career.

Finally, those interviewed repeatedly expressed the feeling that they had become civil servants, not only to serve but also to be governed by their public. They noted a loosening of the old patient relationships and a surprising lack of concern on the part of their patients for the plight of medicine. As one young physician put it, "It's much like the post you know. So long as you're getting your letter on time, you don't have much sympathy for the carrier."

Certainly their complaints were well grounded and worthy of note in this country, for most often they would ask for a comparison with the United States and then end by saying how fortunate we Americans are to have thus far kept the management of medicine within the profession. The point most strongly brought out was the necessity for a careful scrutiny of every new national health measure, for defects are difficult to remove for a group of voters as small as physicians. Nowhere was this more strongly emphasized than by an industrious young layman in the Ministry of Health. When hearing of my numerous interviews with doctors, he handed me a huge pamphlet of statistics saying, "Pity to waste your time talking to doctors. Everything you'd possibly want to know is contained here."

I found it difficult to maintain an objective curiosity regarding the Health Service. In all fairness, attention must be called once more to improvement in care, claimed by laymen and physicians interviewed. However, because of the alarming amount of petty, thoughtless, government control, it is hard to imagine such a system being successful in this country. Forgetting the present question of salary, the American, whatever his vocation appears to be, is much more resentful of bureaucratic restrictions than the Briton.

Also I doubt the sagacity of choosing lay administrators. Certainly one of the pitfalls of any large health service is the risk of dehumanizing medical practice, both for the patient as well as for the physician.

Finally, whatever the course prescribed for medicine in the next decades, surely something has been learned from the misfortunes of the profession in Great Britain. Even better than I, one physician summed up our problem when he said, "Every time you master another disease, you attract the attention of perfectly sincere labor leaders and politicians. So long as you make medicine widely available to their constituents, you'll have nothing to fear. It is only when they think they can improve on your efforts that problems begin."

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Directory of Blood Facilities

The first comprehensive directory and description of blood facilities and services ever complied in this country was released recently by the Joint Blood Council, a nonprofit national organization with headquarters in Washington, D. C.

It shows the location of facilities, the extent of their operations, how they are organized, what specific services they offer and other information of importance to physicians, hospitals and any person or organization interested in blood and its derivatives.

The directory is based on data obtained from a detailed questionnaire sent to all known blood banks, hospitals, and clinics that offer blood-handling services. The questionnaire was sent to 3,150 institutions and 2,202 replied. Those that failed to return the information will have an opportunity to supply it for future directories.

"The directory supplies vital information long needed by physicians, hospital staffs, and others associated with the practice of medicine," according to Dr. Leonard W. Larson of Bismarck, North Dakota, president of the Joint Blood Council. "We now for the first time have a central reference and index to institutions and agencies concerned directly or indirectly with the therapeutic use of blood and its derivatives. We are grateful for the cooperation we received and are satisfied that the information presented is as complete as possible at this time. We are looking forward to listing virtually every blood facility in the United States in future revisions of the directory."

The directory will be distributed free by the council to all institutions and organizations that participated in its preparation, according to Dr. Frank E. Wilson, executive vice president.

Information brought out in the survey and directory includes the following:

1. Of the facilities listed, 1,832 administer whole blood. Also 1,287 administer plasma, 1,021 serum albumin, 994 packed red blood cells, and 311 platelets, with many of the facilities engaging in a number of these activities.

2. Many of the institutions also are engaged in storage of other body tissues. Artery banks are maintained by 116, eye banks by 36, bone banks by 200, skin banks by 24 and mother's milk banks by 20.

3. A total of 1,325 blood banks store whole blood, record donor histories, and have as their primary purpose the recruitment of donors and complete laboratory blood processing. The directory shows whether these banks obtain less than half or more than half their blood from their own recruiting efforts and whether blood processing includes compatibility (crossmatch) testing.

4. Two out of every three organizations listed have no reciprocity system for the exchange or resupply of blood. Of the remaining one-third, which do participate in a national system, 470 use the American Red Cross system, 240 that of the American Association of Blood Banks, and 110 use both systems.

5. Community blood banks and Red Cross regional centers present an entirely different picture with regard to reciprocity, as shown by these data:

Reciprocity System	*Community Banks*	*Red Cross Centers*
American Association of Blood Banks	62	0
American Red Cross	0	41
Both AABB and Red Cross	19	8
None	18	0
Total	99	49

The directory is the forerunner of a complete report of the activities of most organizations engaged in blood services of any kind. This forthcoming report will present the details of operations, quantities and persons serviced, practices and procedures, and other statistical data which were collected during 1957 and 1958 under a project directed by a committee of eminent physicians and scientists.

Economics in Medicine

Records to Be Kept for Income Tax Purposes

FLOYD F. WEHRENBERG, ***Kansas City, Missouri***

For some reason, one of the most painful expenses to be paid is income tax. Since you may be paying from 25 to 50 per cent or more of your cash receipts in income tax, close attention should be given to this expense.

While there are certainly definite rules about income tax deductions, you are not without some control, and it will be to your advantage to exercise this control. Adequate records to reveal and substantiate all possible deductions, and expert counsel to help you recognize those deductions, may save you a great deal of money and concern.

The items most frequently questioned on a doctor's tax return are conventions, organizational dues, business promotion, and car expenses. Let's consider the steps you can take to assure maximum deductions for each item.

Conventions

It is important for you to keep all hotel receipts and a careful record of expenditures for travel and meals when you attend a convention. File these together, identifying the convention, the date, and the place. Remember that you will be expected to have higher expenses in a large city than a small one, so the place is of importance. If your wife accompanies you, she will be your guest and not Uncle Sam's. You cannot deduct any of her expenses.

You are permitted to belong to a medical study club and deduct the fee as a legitimate business expense. You are also allowed to take postgraduate courses if such a course merely enables you to maintain your status and ability. Courses in preparation for a specialty are not deductible.

Dues and Entertainment

You may claim as a deduction the dues you pay for membership in national, state, and county medical societies as well as for those specialty societies to which you belong. Membership in your city's Chamber of Commerce and Better Business Bureau is also considered a legitimate expense. Obviously the Bureau feels that you have a civic duty to belong to the former and that the latter is necessary to your practice.

As a general rule, other club dues are not allowable. However, some agents will permit a specialist to deduct part of his country club or social club dues if he can prove that the memberships are *necessary* to him to obtain referrals. It is always helpful if you can show how association with other doctors at a particular club has led to referrals from that doctor.

When you entertain, keep a list of your guests together with the place and cost. (You may not, of course, include your own expenses.) Then be sure that you can go to your files and prove that you received referrals from those persons or that they have helped you in a concrete way. If you can do that, most agents will allow these deductions as "ordinary and necessary." A specialist will be permitted to entertain more than will a general practitioner whose practice does not depend upon referrals.

Car Expense

A doctor is generally allowed one car for business and one for personal use. If this is your situation, you have no problem. You need only keep the expenses separate so you will have an accurate list of your deductible expenses. However, if you have only one car, it will be necessary for you to determine what percentage of the expenses are business, and then apply that percentage to the total expenses before claiming the deduction. Naturally the percentage varies from doctor to doctor, depending upon how much each is required to use his car for business reasons.

Keep an accurate record of all your expenses and be prepared to prove them. Then let your tax consultant tell you what to claim. The combination of wisdom in your claims and proof in your records will assure you that your income tax is kept to a minimum.

Mr. Wehrenberg is Missouri-Kansas manager, Professional Management Mid-West, 4010 Washington Street, Kansas City, Missouri.

THE KANSAS PRESS LOOKS AT MEDICINE

Editor's Note. In this section the JOURNAL *reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.*

Kansans May Be Proud of Medical Center

Every individual is prone to discuss his personal health problems more than he should. And every newspaper editor is equally given to drawing on his own personal experiences for his subject material.

We have no desire or intention to burden readers with the former, but we do believe we have something to say along the latter line which might be profitable for any Kansan to know. It stems from a first look at a fine state institution—the Kansas University Medical Center at Kansas City, Kansas.

Down through the years we have had many occasions to report the trips of others to the Medical Center and to hear, read and write of it often, but all without knowing, first hand, what a fabulous place it is. Now, after being there briefly, we feel impelled to say that all Kansans should not only feel proud to have such an establishment in their state but downright fortunate, for it ranks among the best and finest in the nation.

Not only is the physical plant a credit to Kansas but the entire atmosphere is one of friendly helpfulness. This would not be surprising from an institution run by a church or some other private agency. For one owned and operated by a governmental unit we think it is. The former would have more reason and better opportunity to "ride herd" on the personnel, it might appear. But in this case it is the State of Kansas and the Kansas University which have somehow managed to do a tremendous job of building a great institution and making of it a leading health center in every respect.

We cannot, of course, affirm that every man connected with the establishment is above reproach, but there is good reason to believe that the great majority of them are. And if one has confidence in his local physician he may easily be directed into good and capable hands when he becomes in need of a specialist.

In our particular instance two personal friends (Dr. George Gill and Dr. Harold Patterson) led us directly to the head of the neuro-surgical department, Dr. William P. Williamson. "If he can't pinpoint the trouble, nobody can," they said, "but he certainly won't mislead you."

Naturally the direction sounded quite awesome, for the broad field of neurology includes such things as strait jackets and brain surgery. Actually, there are myriad angles with purely physical causes and medical approaches. To our great relief (and perhaps to the surprise of some of our friends) ours proved to be one of the latter and it took less than an hour to determine. But had it been more it still would have been reassuring to know that the procedure was not ill-advised.

The entire point is that whether you are guided to your state medical center by friends or by someone else in whom you have confidence, you will be very likely to find every reason to be glad you are a Kansan, with an establishment like the Kansas University Medical Center close at hand, at your service.—*Lyons Daily News, January 31, 1959.*

Our City and the Doctors

The current issue of a national picture magazine has a story designed to set the reader on his ear and perhaps drum up a little extra circulation. It is supposed to expose the operations of hospitals, and one sentence announced that hospitals are run for the convenience of doctors and nurses and not for the benefit of patients.

The medical profession has made an excellent target in the last decade for groups as well as individuals. Everyone likes his family doctor but among these admirers are those who turn on the profession at large. Doctors make excellent targets because they are type shy. They avoid publicity. It has to do with some old-fashioned code of ethics that should have been junked when smallpox vaccine was discovered. Even when doctors have their worst critic under the knife they refuse to poke around in his giblets and give him what he has coming to him. Consequently the doc is held in high esteem when pain tears through the gizzard, but when the patient is hitting on all six cylinders and his spark plugs are clean he sees the doctor as a fellow who rakes in the cash so fast he needs a hay barn to store it. Furthermore, the medical man contributes nothing to community or the public's general welfare, in the eyes of the critic.

This week the Arkansas City Academy of Medicine announced three scholarships would be given to local school teachers for postgraduate work. The purpose of these scholarships is to improve the educational system here. But the doctors do more than this for the community at large and especially for young people from all walks of life.

The staff at Memorial Hospital has sponsored train-

ing for nurses. In fact five have benefited. Another was sponsored for x-ray training at Wichita. In addition four have received $300 scholarships to learn.

There are numerous time-consuming gratuities for which the local doctors get little credit. They offer free physical examinations to girl scouts when they go to camp. The school athletes get free examinations and a doctor sits with the team at football games.

At Christmas time the hospital employes are sponsored by the doctors. Doctors sponsor paid advertisement to help the Red Cross get blood which replaced blood used by the staff. They will do the same thing to encourage people to get polio shots.

Doctors have sponsored the hospital float in the Arkalalah parade. They gave $500 toward the air conditioning fund. The same amount went to the Udall disaster fund and the United Fund received $275 from the doctors. Last summer the Youth Recreation program was supported by a $500 contribution from the doctors.

Presently the medical men are working toward establishing courses at the Junior college for students interested in x-ray and laboratory work. They would sponsor one laboratory and one x-ray technician each year. A dictating system for the hospital is another of their projects.

There has been no lack of interest in community affairs either on the part of the medical doctors. Two serve on the school board and several have been active in the Chamber of Commerce through the years.

The foregoing information possibly reveals to the people some things they didn't know, and perhaps it would have been unethical to treat each fact as a separate news story. It is obvious, however, that the medical profession has done well by the community when one considers the doctors individually or as a group. While the citizen reserves the right to criticize he should also ask himself if he and his organization have done as well.—*Arkansas City Traveler, January 30, 1959.*

Packet for Medical Emergencies

U. S. Army Medical Service supply officers recently demonstrated an emergency medical packet for use in a mass casualty situation to representatives of the Office of the Assistant Secretary of Defense (Health and Medical), the Navy's Bureau of Medicine and Surgery, and the Air Force Surgeon General.

Mass casualty situations occur whenever the number of persons injured is out of proportion to the medical resources available. The problems of mass casualty care are thus not confined to nuclear warfare, but can result from fires, floods, hurricanes, and other civil disasters.

The new medical packet—called Phase I Emergency Medical Treatment Unit—is designed to meet conditions immediately following a military disaster. It has been assumed that during this period no direct professional medical help may be expected, and casualties will either treat themselves or be cared for by other non-medical personnel. Containing 23 items, the emergency packet will provide medical material for treatment of approximately 100 casualties for about 72 hours.

This packet is, however, designed for much more than first aid. The items included have been carefully selected, and training in their use will be carried out by all three services.

Representatives of the Assistant Secretary of Defense (Health and Medical) and a professional supply representative from each of the military departments selected the items to be included, and the emergency care packet was developed at the tri-service Medical Equipment Development Laboratory, Fort Totten, New York, and at the Army Medical Supply Depot, Louisville, Kentucky.

Packaged as one unit, the emergency care packet has nine component cartons: two master packs containing Dextran and miscellaneous items, one fracture pack, two burn packs, and four wound packs. The packages contain 23 items and sufficient medical material to provide care for 100 casualties for 72 hours.

In developing the packet a number of guidelines were followed to assure that the container would be light and inexpensive; easily distinguished from all other material either by use of color or symbol; of weight and bulk to permit handling and transport by individuals; and that the single load could be sealed in such a way as to give visible evidence of inadvertent or malicious opening.

Markings on the outer container include the assembly stock number, nomenclature, weight and cube, the level of packing, month and year assembled, caution information, and control serial number.

A.M.A. Editor Resigns

Dr. Austin Smith announced his resignation last month as editor of the *Journal of the American Medical Association.*

Dr. F. J. L. Blasingame, executive vice president of the A.M.A., said that Dr. J. F. Hammond, associate editor of the *Journal,* will take over Dr. Smith's duties.

Dr. Smith has served as editor of the *Journal* since 1949. He succeeded Dr. Morris Fishbein. In addition to being editor of the *Journal,* he also has directed editorial policies of the association's nine monthly specialty journals. The *A.M.A. Journal,* published weekly, exceeds 175,000 circulation.

PHYSICIANS' ACTIVITIES

Dr. Marshall A. Brewer, Ulysses, was speaker at a recent meeting of the Rotary Club there. He discussed mental illness and its treatment.

"The Fifth Dimension" was the subject chosen by **Dr. Thomas P. Butcher,** Emporia, for an address before the Rotary Club in Kansas City on February 10.

Dr. Charles M. Poser, assistant professor of neurology at the University of Kansas School of Medicine, has been elected to membership in the Societe Belge de Neurology and has been made a fellow of the American Academy of Neurology.

Dr. Alfred M. Tocker, Wichita, presented a paper before the Singleton Surgical Society in Mexico City on January 17. The subject was "Selective Pulmonary High Carcinolytic Agent Concentration in the Treatment of Bronchogenic Carcinoma—A Preliminary Experimental Report." Associate authors were **David Givner, M.D.;** LeRoy E. Dietrich, Jr., D.V.M.; Charles Schnitzler, D.V.M., and **William J. Reals, M.D.**

Dr. Paul J. Uhlig, a pediatric resident at the University of Kansas School of Medicine, recipient of a Wyeth Laboratories Pediatric Residency Fellowship, recently toured Wyeth's Institute for Medical Research and Wyeth's Antibiotic Laboratories in Pennsylvania.

A paper by **Dr. Henry M. Foster,** Hays, was published in the January issue of *American Journal of Obstetrics and Gynecology.* Title of the paper was "Clinical Manifestations of Hypometabolism in Women."

Dr. James W. Neumann, Garden City, presented a film on the heart at a congress on agriculture presented February 18 and 19 by the Garden City Chamber of Commerce.

Dr. Ralph H. Major, of the University of Kansas Medical Center, has been notified that his textbook on physical diagnosis has been translated into Persian by Dr. Kazem Motiey of the University of Tehran Medical College, Iran.

Plans to move to Oklahoma City have been announced by **Dr. Walter E. Blevins,** who has been practicing in Liberal and Satanta.

Commissioners in Ellsworth County have announced appointment of **Dr. Frank A. Dlabal,** Wilson, as health officer.

Dr. F. Russell Frink, Lawrence, has announced that **Dr. Robert D. Hughes** is now associated with him in practice. Dr. Hughes completed a general practice residency at the University of Kansas Medical Center in mid-February.

"Health and Safety" was the subject discussed by **Dr. Henry K. Baker** at a meeting of the Business and Professional Women's Club in Chanute last month.

Dr. Donald Greaves, chairman of the Department of Psychiatry at the University of Kansas Medical Center, was speaker at a meeting sponsored by the Woman's Auxiliary to the Wyandotte County Medical Society on February 3. The occasion was the organization's annual guest day.

Hypnotism was the subject chosen by **Dr. Philip A. Godwin,** Lawrence, for a talk before the Lawrence Kiwanis Club recently.

Dr. Norton L. Francis, president of the Sedgwick County Medical Society, addressed the Sedgwick County Medical Assistants' Society at a meeting in Wichita on January 21.

President Eisenhower has nominated **Dr. Franklin D. Murphy,** chancellor of the University of Kansas, for a new three-year term as a member of the U. S. Advisory Commission on Educational Exchange. The nomination was confirmed by the Senate on February 19.

Dr. John K. Fulton, Wichita, spoke on "Pulmonary Functions" at a recent meeting of the South Central District of the Kansas Society of Medical Technologists. The meeting was held in Wichita.

Dr. Marion F. Russell spoke to the Rotary Club in his home city of Great Bend recently on the part physicians have played in developing Barton County.

The Snyder Clinic, Winfield, announces the association of **Dr. Mildred R. Passmore** and **Dr. Margaret B. Obenschain** in its department of pediatrics.

Dr. Glen E. Kassebaum, El Dorado, showed colored slides taken during a trip to Europe at a recent meeting of the Butler County Medical Assistants' Society in El Dorado.

Dr. K. R. Reissmann, of the University of Kansas Medical Center, has received a grant from the American Heart Association for a study of "Quantitative Relationship of Tissue Hypoxia and Cellular Impairment," to cover a period from January 1, 1959, through December 31, 1960.

In a list of 20 appointments made by Governor George Docking recently, subject to confirmation by the Senate during the 1959 session, were two nominations for the Kansas State Board of Health, **Dr. James J. Basham** of Fort Scott and **Dr. Earl C. Sifers** of Kansas City.

Dr. Ward M. Cole, Wellington, participated in a forum launching Parent-Teacher Association study groups in Wellington last month. Four areas of family life were discussed, and Dr. Cole spoke on home influence and authority.

Dr. E. Grey Dimond, of the University of Kansas Medical Center, spoke on "Experience with Internal Mammary Artery Ligation for Angina Pectoris" at a recent meeting of the Buchanan County (Missouri) Medical Society.

Dr. Leland F. Glaser of Hutchinson and **Dr. Lewis G. Allen** and **Dr. Doris Kubin** of Kansas City were elected to fellowship in the American College of Radiology at a meeting held in Chicago last month.

Dr. Francis R. Applegate, formerly of St. Marys, moved to Goodland last month and began practice there on February 15. He was graduated from the University of Kansas School of Medicine in 1955.

"A Case Study on Diabetic Acidosis and Coma" was presented at a meeting of the Graham County Registered Nurses Association recently by **Dr. Donald L. Marchbanks** of Hill City.

COUNTY SOCIETIES

A meeting of the Douglas County Medical Society was held at Lawrence on January 20. Dr. Kenneth E. Jochim, chairman of the Department of Physiology at the University of Kansas, spoke on "Cardiovascular Responses to Epinephrine."

Mr. James K. Logan, assistant professor of law at the University of Kansas, was guest speaker at a meeting of the Shawnee County Medical Society held in Topeka on February 2. His subject was "Estate Planning."

"Treatment of Acute Renal Failure" was the subject discussed by Dr. Belding H. Scribner, of the University of Washington School of Medicine, at a meeting of the Sedgwick County Medical Society held in Wichita on February 9.

Dr. Thomas P. Butcher, Emporia, president of the Kansas Medical Society, presented 50-year diamond lapel pins to five physicians who are members of the Tri-County Medical Society at a meeting held at Harper on January 28. The five so recognized are: Dr. Harry L. Cobean, Dr. Albert R. Hatcher, and Dr. William H. Neel, all of Wellington, Dr. David E. Kisecker of Caldwell, and Dr. George M. Wooden of Argonia.

Evaluation of Mitomycin C

The Cancer Chemotherapy National Service Center reported today that Mitomycin C, an antibiotic reported as giving promising results in cancer treatment in Japan, his frequently produced major toxic reactions but seldom objective improvement in clinical trials in the United States.

The antibiotic has been under pilot clinical evaluation in this country as an anti-tumor agent in a substantial variety of tumors. In view of the effects observed in three current studies, it has not so far replaced the standard chemotherapeutic agents in any form of cancer, the Chemotherapy Center's announcement said. Full reports on the clinical trials will appear later in the scientific literature. Meanwhile, studies of the drug are being continued.

Japanese experience in treating human cancer with Mitomycin C was reported at a Symposium on Antibiotics in Washington, D. C., October 16, 1958.

BOOK REVIEWS

Essentials of Therapeutic Nutrition. By Solomon Grab, M.D. Published by Springer Publishing Company, Inc., New York. 147 pages. Price $2.00. Paperback.

The aim of this book is to give the graduate nurse a patient-centered review of therapeutic nutrition. The book is divided into three parts: The Principles of Nutrition, Therapeutic Diets, and Quick Reference Tables.

In the first part the basic principles of nutrition are discussed in a clear and condensed manner.

The second part is composed of therapeutic diets commonly used in the treatment and prevention of disease. Each diet outlines the purpose, analysis, deficiencies, food to be increased, decreased or omitted, and comments concerning diet. Information regarding these diets was collected from a survey of diets used in several large hospitals of the United States.

The last part contains quick reference tables. These tables would be of more value if all gave the household measurement of 100 grams of food. Most people have difficulty in visualizing the amount of food weighing 100 grams. Example: 100 grams of meat and 100 grams of head lettuce.

I believe the graduate nurse in a situation requiring her to give diet instructions or to answer dietary questions would find this book to be a good review of therapeutic nutrition.—*V.G.H.*

Treatment in Internal Medicine. By Harold Thomas Hyman, M.D. Published by J. B. Lippincott Company, Philadelphia. 609 pages. Price $12.50

This book is extremely useful as a quick reference for diagnosis and treatment of diseases a physician sees in his daily office practice. It is organized in ten sections:

1. The Infectious Diseases
2. Metabolic Disturbances
3. Neoplasms
4. Allergies, Collagen Disorders, Hypersensitivities, Idiosyncrasies, and Untoward Reactions
5. Poisonings and Environmental Hazards
6. Disturbances of the Circulatory System
7. Disturbances of Blood and Blood-forming Organs
8. Neuropsychiatric Disturbances
9. Disturbances of the Endocrine Glands
10. Disturbances in Specialty Fields

The diagnosis of each disease is described, then the most effective form of treatment, then alternate forms of treatment with advantages and disadvantages of each.

Especially worthwhile are the lists of anti-infective agents with indications for clinical use of each product, virus diseases, metabolic disturbances, allergic disturbances, collagen disorders, and many others.—*G.W.N.*

Dorland's Pocket Medical Dictionary. 20th Edition. Abridged from Dorland's Illustrated Medical Dictionary. Published by W. B. Saunders Company, Philadelphia. Price $4.50.

Since 1898 the medical profession has had access to an abridged (pocket) version of Dorland's standard work. The 20th edition, out last month, is the first published since the death of Dr. W. A. Newman Dorland in September of 1956.

The volume differs little from previous issues in general appearance or format; the only changes of importance are in content. As knowledge of medicine and related sciences increases, words are added, deleted, and changed in meaning. The physician who is interested in precise terminology finds a new dictionary a necessity at regular intervals.

The three primary functions of a dictionary—the provision of spelling, pronunciation, and meaning—are fulfilled in this pocket volume. While it does not take the place of a larger dictionary, it efficiently serves the purpose for which it was intended.—*P.F.*

Disease and Destiny—Logan Clendening. By Ralph H. Major, M.D., Eighth Series of Logan Clendening Lectures on the History and Philosophy of Medicine. University of Kansas Press, Lawrence. 49 pages, 7 figures. Price $2.00.

This is a printing of two addresses given for a memorial lectureship in honor of the late Doctor Clendening. They are entirely unrelated and are combined apparently because they were given in the same year. The author is a retired professor of medicine of the University of Kansas, who was familiar with Doctor Clendening and shared his interests in medical history. The second lecture is devoted to a sketch of his life with particular emphasis on his activities in developing a Department of the History of Medicine at Kansas. It contains many quotations and anecdotes, rather loosely assembled, and reads like a eulogy.

The first lecture cites a number of examples where disease apparently played a part in shaping the course of history, either by affecting the lives of strategic individuals, or undermining the strength

of populations or nations. The instances cited are described at considerable length, but the conclusion reached is only that disease plays a role in history.

The original audiences no doubt enjoyed these talks. One wonders, though, if the material presented was worth publishing, and how many people will pay $2.00 to read it.—*J.E.S.*

The Birth of Normal Babies. By Lyon P. Strean, Ph.D. Published by Twayne Publishers, New York City. 193 pages. Price $3.95.

This book concerns itself with probable causes and theories of pregnancies that end in failure; that is, in miscarriages, birth defects in the newborn, or stillbirth. According to Dr. Strean, the major causes of defective babies can be attributed to the occurrence of stress in one form or another during the first three months of pregnancy. The stress may result from a fall, a blow, powerful medicines, antibiotics, infectious diseases, or possibly even unhappy and unpleasant environmental situations. It is his feeling that these conditions give rise to an excess output of cortisone, which is apparently the direct cause of the various abnormalities. He states that since Vitamin B_6 counteracts the effects of cortisone, it should be included in adequate amounts in every prenatal diet.

Dr. Strean arrived at his conclusions after investigating the prenatal experiences of mothers of approximately 200 babies with cleft palate. In all of these instances he found at least some evidence of emotional strain, injury, or some illness in the first three months of the prenatal period. Many of the traumatic experiences that he describes, however, are no different than many patients experience during this period of the prenatal life. At no time did Dr. Strean investigate experiences of normal prenatal patients, and his conclusion, I am sure, indicates his inexperience with their usual symptoms.

Dr. Strean also lists many case histories to substantiate his beliefs. At best one might say that he has some interesting ideas concerning causes of fetal injuries, and the future may even prove that he is right. However, the experimental evidence that he lists in his book is entirely inadequate for the conclusions that he draws.—*R.G.H.*

Nursing Recruits Reach New Total

Admissions to schools of professional and practical nursing reached a new high in 1958, according to the Committee on Careers, National League for Nursing, New York. An estimated 46,600 students entered basic professional nursing schools, compared with 44,281 the preceding year. Some 20,000 began training for careers in practical nursing, compared with 16,710 the year earlier.

John H. Hayes, chairman of the committee, which spearheads national information activities for careers in nursing, points out that these admissions records for nursing schools indicate several factors may be operating to help ease personnel shortages in nursing. These are a slight population increase in the teenage group eligible for professional nursing, an increasing number of schools of practical nursing, and the growing effectiveness of community nursing information programs throughout the country.

Among professional nursing schools, diploma nursing programs in hospitals and independent schools showed the largest numerical new student gain, rising from 36,318 in 1957 to 38,550 in 1958. These programs accounted for 82.7 per cent of the new nursing students in both years. Basic college programs leading to a bachelor's degree in nursing rose in admissions from 6,893 to 7,250, or 15.6 per cent of the total admissions in each year. The newer junior and community college nursing program, usually two years in length, showed a slight gain from 770 to 800 new students or 1.7 per cent of each year's total admissions.

Nursing education programs accredited nationally by the National League for Nursing continued in 1958, as in several years past, to attract the large majority of new students, 82 per cent of those entering schools reporting in the survey going into fully or provisionally accredited programs.

Admissions estimated for professional schools are for the calendar year 1958, for practical nursing schools for the academic year 1957-58. The 1958 figures are estimated by projecting returns from the majority of schools to the total number of schools. The 1957 figures are actual admissions.

The Committee on Careers is jointly sponsored by the American Hospital Association, American Medical Association, American Nurses' Association, and the National League for Nursing, and its program is supported also by the Sealantic Fund and the National Foundation.

Duane G. Wenzel, Ph.D., professor of pharmacology at the University of Kansas, has received a grant from the Tobacco Industry Research Committee for a study of "The Determination of the Chronic Effects of Orally Administered Nicotine on Serum Cholesterol and Phospholipids; the Electrocardiographic Response to Ergonovine, and the Vascular Pathology of Cholesterol-Fed Rabbits." New appropriations of the committee bring to $3,200,000 the amount provided by the industry group for research.

Children and Poison Don't Mix

Fifteen hundred children will die from accidental poisoning this year, according to a newsletter published recently by the Medical Department of Ross Laboratories, Columbus, Ohio. A child is exposed to many potential perils from medicines, insecticides, insect repellents, bleaching solutions, and cleaning and disinfecting substances.

Poisoning is frequently the result of exposure to toxic agents in *unsafe places* in the home. As children become more mobile, they climb to higher places such as medicine cabinets, upper shelves and other storage areas, and frequently become victims of poisoning by drugs intended for internal administration. A basic rule for prevention is that all potentially harmful substances should be placed in places completely inaccessible to the infant or small child. Prevention is the best therapeutic measure available.

Storing harmful substances in household containers is a contributory cause of poisoning in far too many cases. Kerosene, benzene, turpentine, ammonia, furniture polish, and insecticides are frequently stored in such containers as drinking glasses, soda bottles, mayonnaise jars, coffee cans, milk bottles, and fruit jars. In more than 50 per cent of reported cases in which poisoning was due to bleaching agents, solvents, ammonia, and insecticides, the substances were not in their original containers when the poisoning occurred.

Study also indicated that in addition to not being in their original containers, most of the toxic agents were in open places, such as tables, shelves, floors, under sinks, or on window sills. In many other cases, the toxic agent was in a handbag given to the child to play with. If these substances had been kept in their original containers and placed in out-of-the-way areas, inaccessible to the child, the occurrence of poisoning would have been eliminated.

Other children and adults who may be alert to the dangers of poisons may, through force of habit in using particular containers, ingest the substances by accident. The best advice for the whole family is never to put poison in any familiar container.

If parents realize the potential harm of substances in the home, and utilize ordinary safety precautions in making sure that toxic materials are out of reach of their children, accidental poisonings will be minimized.

Mouth-to-Mouth Resuscitation

"And he (Elisha) went up, and lay upon the child, and put his mouth upon his mouth, and his eyes upon his eyes, and his hands upon his hands: and he stretched himself upon the child; and the flesh of the child waxed warm." II Kings 4:34

A recent revival of the Bible method of helping asphyxiated patients to breathe again is being used by the Army Medical Service.

Called "mouth-to-mouth" resuscitation and believed to be "the best system available," the method is now being taught at Brooke Army Medical Center, Fort Sam Houston, Texas, to all personnel at the Army Medical Service school, including assigned instructors and administrative personnel, demonstration troops, and students, whether officers or enlisted men or women.

The process is new in recognition only, for, apart from the story of Elisha, medical history recorded successful resuscitation by mouth-to-mouth breathing more than 200 years ago. Studies conducted during the past few years have proved the superiority of this procedure in comparison with other methods of artificial respiration in common use.

In its simplest form, the operator removes any mucus or foreign matter from the victim's throat and mouth, with his fingers. He then takes a firm hold on the patient's lower jaw, tilts the head back by pulling on the jaw, pinches the patient's nostrils shut, and after taking a breath places his mouth over the patient's mouth and exhales until he sees the chest of the patient lift. The operator then takes his next breath while listening for the patient's exhalation. The operator breathes about 12 times a minute for adults, and about 20 times a minute for children.

Advantages of the process are many. Mouth-to-mouth resuscitation forces more air into the patient's lungs; it is more easily controlled by the operator; the operator can continue for a long period of time with no ill effects; it is effective with any asphyxiated patient; no equipment is needed for maximum results, but if equipment is available, it allows greater freedom of motion for attendants.

Contrary to popular belief, exhaled air is not entirely carbon dioxide, but contains enough oxygen to revive the patient with no harmful effects from carbon dioxide. In addition, laboratory tests have proved that the volume of air displaced by this method is several times greater than that by any other system of artificial respiration.

Prevalence of Epilepsy

At least one out of every 200 Americans has epilepsy in "mild or severe form," according to the current issue of *Patterns of Disease,* prepared by Parke, Davis and Company for the medical profession.

The disease is cited as "a major health problem," occurring as often as diabetes or active tuberculosis and four times more often than polio.

Further, about six in 100 Americans have "some sort of convulsive episode at some time in their lives."

The Kansas Medical Society—1958-1959

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ANNOUNCEMENTS

Tenth annual F. G. Thompson, Sr., lecture at Thompson, Brumm, Knepper Clinic and Hospital, St. Joseph, Missouri, Thursday evening, May 21. Speaker, Dr. Michael L. Mason, Northwestern University School of Medicine. Subject, "Treatment of Acute Injuries to the Hand."

Medical officers needed by National Institutes of Health, Army, Navy, Air Force, Public Health Service, Indian Service Hospitals, Food and Drug Administration, the Children's Bureau, and St. Elizabeth's Hospital, Washington, D. C. Starting salaries from $7,510 to $12,770. Write U. S. Civil Service Commission, Washington 25, D. C., asking for Announcement No. 178.

Oregon Cancer Conference, Portland, July 16 and 17. Programs and hotel reservation forms available from Roscoe K. Miller, Oregon State Medical Society, 1115 S.W. Taylor Street, Portland 5, Oregon.

Seventh annual interim scientific meeting, Phi Lambda Kappa, Deauville Hotel, Miami Beach, Florida, April 5-12. Write Dr. Samuel L. Lemel, 1621 Euclid Avenue, Cleveland 14, Ohio.

Sixteenth annual meeting, Association of American Physicians and Surgeons, Fort Worth, Texas, April 2-4. Write the Association, 185 North Wabash Avenue, Chicago 1, Illinois.

Thirteenth annual Rocky Mountain Cancer Conference, Denver, July 22-23. Block of rooms reserved at Brown Palace Hotel. Write John W. Pompelli, Colorado State Medical Society, 835 Republic Building, Denver 2, Colorado.

Silver anniversary meeting, American College of Chest Physicians, Ambassador Hotel, Atlantic City, June 3-7. Examinations for fellowship on June 4. Write the College, 112 East Chestnut Street, Chicago 11, Illinois.

Deadline for receipt of new and reopened applications for certification by American Board of Obstetrics and Gynecology, August 1. Write Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6, Ohio.

Series of refresher courses during May and June at Children's Hospital, Philadelphia, and Graduate School of Medicine, University of Pennsylvania. Courses include pediatric advances, pediatric hematology, practical pediatrics. Write Dr. Irving J. Wolman, 1740 Bainbridge Street, Philadelphia 46, Pennsylvania.

Summer School of Alcohol Studies of Laboratory of Applied Biodynamics, Yale University, June 28-July 23. Write Registrar, Yale University, 52 Hillhouse Avenue, Yale Station, New Haven, Connecticut.

Meeting, American Goiter Association, Drake Hotel, Chicago, April 30-May 2. Write Dr. John C. McClintock, 149½ Washington Avenue, Albany 10, New York.

First Midwestern Sectional Meeting, Biological Photographic Association, University of Iowa, April 24-26. Write Carroll H. Weiss, 160 Riverside Drive, New York 24, New York.

Pan-Pacific Surgical Association, Honolulu, Hawaii, September 28-October 5, 1960. Write Dr. F. J. Pinkerton, Suite 230, Alexander Young Building, Honolulu 13, Hawaii.

Nine-month traineeship in cardiology for the practicing physician, Cardiovascular Laboratories, University of Kansas Medical Center, Kansas City, September 15, 1959-June 15, 1960. Formal instruction and practical experience in diagnosis and therapy. Enrollment limited. Tuition $600. Write Department of Postgraduate Medical Education, KUMC, Kansas City 12, Kansas.

Bibliography of Aviation Medicine Available

The Aero Medical Association, in cooperation with the Library of Congress, has completed arrangements to publish a comprehensive annotated bibliography of aviation medical literature for 1953, according to an announcement by Brigadier General M. S. White, USAF (MC), Washington, D. C., president of the society. The volume will be off the press in January 1959.

Entitled, *Aviation Medicine: An Annotated Bibliography, Vol. II (1953 Literature)*, the work includes 1,386 references and abstracts from nearly 200 American and foreign journals. Subsequent annual volumes will contain published reports from the literature of 1954 to the present.

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Intrusion

A Social Psychological Approach to the Treatment of Chronic Mental Patients

LAWRENCE APPLEBY, Ph.D., *Osawatomie*

There is certainly little doubt that mental illness or its counterpart, psychological health, is one of the central issues confronting our society today. The fact that mentally ill people number about 50 per cent of the total hospital bed count in this country is but one significant indicia that it is a problem of paramount importance.

When we speak of mental disorders we usually encompass a rather long array and variety of symptom constellations. Yet, a single glance at the crude statistics of a given mental hospital reveals what can be considered the major diagnostic source of difficulty: namely, those people categorized as suffering from a form of schizophrenia. This illness constitutes almost one-half of the total patient population and an even higher percentage among patients hospitalized for many years. Of further interest is that the opportunities for a functionally psychotic person to be released from the hospital decline from a ratio of six to ten during the first year of admission to about one chance in ten after he has been an inmate of an institution for two years.* It is thus apparent that the most challenging problem within the hospital is the schizophrenic patient. For that reason our attention was focused in particular on the case of long term residency.

Despite a display of relative sophistication, there is a gap in our knowledge of the nature, causes, and treatment of mental disorders. The above figures in part reflect the elusiveness of chronic schizophrenics to successful rehabilitation. Such patients remain a scientific enigma. Consequently, especially within hospital structures, a somewhat extreme practice has evolved, employing one treatment after the other on a trial and error basis in anticipation that something beneficial will be found.

Such a pragmatic point of view implies that functional disorders are to some extent irreversible, in which case the patient is left with a handicap that he will have to contend with the rest of his days. Efforts here are devoted mainly toward symptomatic treatment, the goal being a "social improvement." Under these uncertain conditions, there is anxious hope that the patient will not have to return, or at least will stay out of the hospital for some reasonable length of time. In settings where there is a minimum of personnel, the chronic patient receives a limited amount of attention, more energy being invested in the acutely ill.

Within the last decade, however, a renewed interest has developed along with growing optimism for the rehabilitation of long-standing institutionalized patients. Impetus has come from various disciplines including psychiatry, biology, sociology, anthropology, and psychology. Among the more noted influences in treatment of severe mental illnesses are ataractic drugs, psychosurgery, and milieu programs. There has been, in addition, a revival of total push procedures which have proven quite successful in the past few years. There is also an increasing amount of

This paper was read at a meeting of the Kansas Occupational Therapy Association at Osawatomie State Hospital, March, 1958. It represents a preliminary report of a current investigation supported by a project grant (OM-116) from the National Institute of Mental Health, United States Public Health Service.

Dr. Appleby is senior staff psychologist at the Osawatomie State Hospital.

* These percentages are actually the discharge rate in the year following the point of residency.

literature which describes the social and psychological parameters of the mental hospital and its relation to patient treatment.

The purpose of these observations was to set the stage and indicate that we are in a period of exploration and examination, an era characterized by evaluation of progress, new methods, theories, and research. It is within this scheme that we find ourselves; we have an opportunity to select from accruing data and a favorable time for integrating this information into novel ideas and techniques.

At this point it seems appropriate, as a meaningful departure, to present some of the critical implications which undoubtedly served as a guide in our approach to the question of chronic schizophrenia. The more crucial points of analysis revolve about such issues as (a) How does the hospital atmosphere contribute to and prolong the behavior of schizophrenic patients? (b) Are assets of hospital personnel exploited sufficiently toward instituting basic therapeutic programs? (c) Can an effective and yet economic treatment model be introduced into the present hospital structure?

Concept of Illness

Within our culture the state of sickness usually connotes a passive position on the part of the patient—a "do something for me" attitude. The duty then of those engaged in treatment is to assume liability and assist the person back to health. The passive-active stratum of illness is enhanced in the mental hospital where the accent unfortunately is on debility. This phenomenon is not necessarily restricted to mental hospitals but may be germane to institutional environs in general.

The staff, conditioned to think of mental ailments in terms equivalent to helpless plights, often interprets an objective failure of responsibility as a result of the patient's illness. Once concentration centers on dysfunction, the perspective for treatment potentialities becomes manifestly narrowed; personnel find themselves eventually in roles of solicitude, indulgence, and protection. The extreme patients, judged to be incompetent and incurable, present an even more exaggerated picture. They are considered virtually incapable of participating in normal activity and live in surroundings permeated with an aura of futility and hopelessness.

In the system where the patient is deprived of responsibility, or given only perfunctory obligations for himself, it is little wonder that Scher[12] concludes that not enough demands are made on patients to allow them to develop their own sense of decision-making. If it is our aim to return the patient to a normal orderly world, how is this feasible when we focus on illness instead of health, creating an artificial environment where the usual reality-oriented living process is minimized? This position is in close agreement with Scher's analysis[13] of a permissive hospital setting.

In other words, a community which is sensitive to the needs of illness and not responsive to those of health neither prepares the patient to accept his share of responsibilities and decisions nor motivates him to resume a normal role in society.

These statements can obviously be magnified in regard to the chronic patient. Recent studies demonstrate that it is the very norms and expectancies communicated and allowed to persist that foster the spirit of chronicity—which has rightfully been attributed as an artifact of the hospital subculture. Dramatic changes, for example, have occurred in chronic wards with simple alterations in the norms. Once the general attitude "this is not expected here" has been effectively inculcated, problems of incontinence and combativeness have been removed or are negligible.

A similar process accounted for differences noted between two institutions in the same locale. According to Dr. Meyer Williams, Chicago, a patient, either mute or combative, admitted to one hospital would tend to remain so for long durations, while people with similar symptoms would relinquish this behavior within two weeks at the other institution. In our project behavior changes in the first few weeks can be related to the pressures of the ward personnel. Combativeness and incontinence, typical problems with the same patients in their original settings, have been almost eliminated in a relatively short period of time.

Economy of Approach

Invariably the issue of treatment reverts back to the problem of personnel, the usual reaction being that more psychiatrists and physicians, psychologists, social workers, and adjunctive therapists are needed for a better therapeutic regimen. A program which adds considerable professional personnel is indeed expensive. Results of such programs, though sufficiently positive on the surface, are still open to scrutiny. It does not logically follow, however, that optimal treatment programming must be delayed because of the shortage of staff. The onus is on those who are available, and the issue viewed positively can be stated: What can be done where there is a dearth of professional personnel?

Too often a general therapeutic distinction is made between the treatment received by patients from members of the professional staff in contrast to patient-aide relationships. Though the vital contribution of nursing personnel in therapy of the patient is gaining recognition informally, there is little official admission of their therapeutic role. The hier-

archy of roles and problems involved in the conception of therapy was given considerable attention in the Research Conference at Boston in 1954.[7] Chapter 10 discusses in detail the specific issues relevant to nursing personnel. Despite the fact that nursing personnel spend considerably more time with the patients than the average therapist, there has been a fairly uniform lack of demand made upon them to take an active interpersonal part in patient treatment.

Perhaps a few words about the role of psychotherapy in an institutional setting are also of relevance, The value of psychotherapy as a treatment tool seems to rise in stature as other techniques do not accomplish the desired goals. Contrary to the relegation of therapeutic efficiency to nursing personnel, psychotherapy is maintained as the ideal and those possessing this skill are highly sought after. In the hospital situation, and there is no likelihood of this ever changing, psychotherapy is a grossly uneconomical procedure. It is a "luxury" for those fortunate enough to receive this treatment and a learning experience for those who administer it.

A compromise solution was offered in a suggestion that a therapeutic procedure would be most economical if the natural resource of the hospital, the psychiatric aide, were employed for treatment of the patient. Secondly, we hypothesized that an efficient program could be effected if the personnel were systematically presented with the key principles in the psychopathology and therapy of schizophrenics and the operation of group processes and communication.

Concepts of Treatment

Existing procedures in the treatment of schizophrenic patients lack theoretical consistency. There is a limited rationale for the methods used, the major justification being that they have immediate practical application. This emphasis on empirical approaches leads to a random process of elimination and the utilization of methods which seem to have little relationship to what is known about the process of mental illness. For instance, the abundant use of somatic and drug therapies has, to date, no reliable foundations in biological concepts of mental disorders.

More significant, perhaps, is the failure of the mental institution in its present form to foster stable personal concepts. A system which accentuates the shift from one activity to another, and one therapist to the next, allows little room for a consistent frame of reference. Yet, one of the most agreed upon criteria of a mental disorder is the patient's unpredictability. How does one learn then to generalize in an atmosphere which exposes the individual to a constantly fluctuating world? Since stability of communication patterns can be controlled only in a continuous interpersonal process with a given length of time for interaction, it was proposed that the group of patients be assigned to one person only (practically, this means two people a day), remaining together from waking to sleep, participating as one unit in all activities.

Another consideration in the development of our thinking was to advance a broad working operation of treatment which would embrace a coherent theoretical orientation. Rehabilitation, conceived here, is a total process aimed at restoring the individual to society within the fullest limits of his potentialities. In contrast to the largely empirical methods employed, it is our intent to attack the disability itself, attempting to improve the condition of disorganization along preconceived notions. Such a procedure purports to alter the patient's behavior drastically in order that he will be able to cope successfully with the stresses of daily living.

We assumed it is possible to conceptualize the behavior characterized by schizophrenia in psychological terms. Therefore, the alteration of schizophrenic behavior can take place through an interpersonal process. The direction of treatment is determined by what is presumed to be the focal point of the disorder.

Experimental Procedure

Our aim is to determine whether a new treatment approach can yield more profound results than existing empirical methods. The experiment was designed so that three different treatments could be comparatively evaluated: theoretical treatment, total push treatment, and a control treatment program.

Thirty female schizophrenic patients were selected from chronic wards and divided at random into three groups, each group of ten patients receiving a distinct therapeutic method. The patients reside on one ward and will remain there for six months, the duration of the project. Psychological instruments were administered before the introduction of treament and will be given again at defined stages.

The subjects, all diagnosed as schizophrenic, are, on the average, 38 years old and have remained continuously at the hospital for about 12 years. Their mean age at last admission was approximately 26, and they have received 11 years of education. The patients, on the whole, can be considered as regressed, though there is marked variation in the level of organized behavior. When chosen they were described as withdrawn, uncooperative, assaultive, combative, and unresponsive. Seclusion, heavy drug dosages, and electric shock were used as the main methods of treatment and control.

Theoretical Treatment Program*

Theory. In brief, the formulation employed is closely allied with recent psychoanalytic ego psychology. It assumes that cognizance of reality is altered because of diminished or complete loss of awareness in the schizophrenic of both bodily and conceptual processes. It is this lack of differentiation (disruption in ego boundaries) which prevents the schizophrenic from distinguishing himself and the outside, the real from the unreal.

Because of the loss of awareness of themselves—the absence of a stable internal reference point—schizophrenics have reduced sensitivity to affects, feelings, and sensations of bodily processes as well as thoughts, ideas, and other mental activity. An example of the lack of awareness of both outer and internal sensations in a patient is described by Staveren[17] during a therapeutic session:

"The patient put a cigarette between her lips and held a match in her hand, about to light it. I struck a match and lit the cigarette for her, and she took a few puffs, and then proceeded to light her own match and relight the cigarette. I asked her to take time out and observe for a moment what had gone on. We were able to establish that though her senses had responded to my lighting her cigarette, there seemed to be no representation of that fact or of my person in her awareness. This made it possible for her to light the cigarette again herself, as if nothing had gone before. She summed this up by saying: 'So, I'm talking out loud to myself rather than to you.' "

Therapeutically, to aid schizophrenics in regaining lost ego boundaries, in experiencing themselves as independent persons with realistic identities of their own, there must be an intrusion into the schizophrenic's world. The encroachment upon the psychotic process is achieved through a constant attending, making him aware of himself: that is, his bodily processes, actions, communications, effects of others on him, and his effects upon others. As Scher[14] states, ". . . in obtruding into the world of the patient, one must make him aware of his own reponses, such as scratching or masturbating, in order that he may again begin to attend to stimuli of pain and other feelings from his own body, as a meaningful and significant source."

Aides and Program. A number of select aides were allocated for the project. Consultation sessions were held prior to the starting date to acquaint the personnel with the theoretical background of the research and the methods to be utilized. Four aides have been assigned to the group, two responsible for the morning and afternoon shifts and the other two as their reliefs.

Training sessions are held each week and contact is made daily with each aide on the ward. These meetings are held to discuss programming, methods, and special problems and to evaluate progress. The aide spends her complete time with the group, the exceptions being for meals and a period to write up notes. When with the group, she is in complete command of the patients; no one is available to help or advise her.

Nursing personnel thus become crucial figures in the treatment program. Rather than rigidly structuring the milieu through excessive limit-setting or permissiveness—in either case a growth deterrent—her attitude is that of an understanding person functioning within an external set of communal rules which serve as a guide for the group. She also allows each individual patient latitude for development in independent responsibility and decision-making.

The aide is the reality reference for the patient and she must continually interrupt the individual psychosis in order to structure the patients' world and orient their behavior into meaningful, organized, and goal-directed channels. She intrudes into the lives of the group, promoting affective involvement through natural and spontaneous reactions to the patients.

Throughout the day the aide repeatedly "forces" her presence into the interaction, directing all members to be aware of themselves and the other people involved. She may aim attention on the inertia of those not participating, point out over-enthusiasm, or even identify with complainers if their comments are perceived by her as realistic. In all instances she guides behavior toward reality in conjunction with group norms.

A rigorously devised full activity program for the group is not necessary, but it is essential that the patients remain together in anything they initiate. Particular activity is de-emphasized for the immediate needs of the patients, the activity being only a means for establishing a unitary interactional event which enables the aide to enter the situation and maximize her presence therapeutically.

Finally, she endeavors to strengthen adjustive behavior through praise, encouragement, and support and discourage either subtly or directly behavior which is maladaptive. She will deter bizarre behavior, peculiar verbalizations, and ideas, directing the patient's energies elsewhere through centering attention on reality perceptions.

Total Push Group

The second group of ten patients has been placed in an intensive "push" program. During their waking periods a philosophy of activation and socialization is

* The writer is indebted to Dr. John Cumming, Dr. Austin Des Lauriers and Dr. Jordan Scher for their aid and contributions to the ideas expressed in the theoretical treatment program.

stressed. Such a rigorously devised schedule is designed to interfere in the withdrawal and apathy of the chronic schizophrenic, geared to re-build lost habit and normative behavior patterns. The patients are involved in every phase of activity therapy, evening social affairs and regular group therapy sessions.

Control Treatment Group

The control group program follows the usual hospital procedure, consisting of the therapeutic prescription plan suggested by the ward psychiatrist. Treatment is based on the patient's needs and the goals developed by a staff team which has discussed diagnoses, treatment, and planning implications.

Evaluation Techniques

A number of instruments have been utilized to measure whether any differences will occur under these methods. Evaluations will be made before, during, and at the conclusion of treatment. Among the dimensions of behavior being measured are: ward adjustment; clinical symptomatology; intellectual efficiency; perceptual behavior; conceptual behavior; and self concept. A final measure will be follow-up appraisals of the patients at post-treatment intervals of 6 and 18 months.

Conclusion

We have attempted, in condensed fashion, to describe some major weaknesses inherent within the mental hospital structure. In contrast to the usual practical treatments employed, an alternate method based on social psychological theory has been proposed. This formulation isolates common elements in the psychopathology of schizophrenia and makes the assumption that the primary communicative disorder is due, in large measure, to the patient's lack of awareness of his own person as a reference point. As a consequence, a therapeutic strategy has been conceptualized emphasizing the stability of patient grouping, maximal use of norm processes, and employing nursing personnel as primary treatment agents in a continuous and active intrusion into the patient's world.

It is our purpose to demonstrate that a hospital program based on these particular theoretical assumptions will be more effective and economical than programs of largely empirical methods. In addition, it is hypothesized that such a method of intrusion, based firmly in social psychological theory, can be transmitted to relatively untrained staff members who can effect profound personality changes in schizophrenic patients.

Though it is too early to report on specific findings, preliminary changes have led us to think optimistically of the outcome. Alterations in group norms are manifest in overall qualitative impressions of patient behavior. Most dramatic has been reduction of combativeness, untidiness, and the amount of seclusion time. Another event of interest is that these patients, who had seemingly lost interest in themselves and the outside world, spontaneously initiated as their first project a comprehensive plan for living and personal care.

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PRESIDENT'S PAGE

Dear Doctor:

Please indulge a bit of philosophy at the close of what has been, for me, a most happy year as your president. This has to do with The 5th Dimension.

In a world of hydrogen bombs and interplanetary rockets, and telescopes that reach out a billion light years into space (and thus also a billion years back in time), mankind sometimes regards himself as a forlorn and tragic actor, trapped, without his will, in the cosmic clockwork of creation.

To the familiar concept of a 3-dimensional universe has been added the 4th dimension of Time. (Every real event occurs at a point in time, as well as space.) However, there is a 5th dimension of reality that is just as obvious, but that is usually disregarded. This is the human factor in all experience and all knowledge.

Men think they see the universe of atoms and stars, of physics and chemistry and mathematics, as something outside of themselves. Mankind then appears as a bit of fungus that has occurred by chance on a tiny sphere of air and rock and water, attached to a very ordinary star, lost among billions of stars, in a galaxy lost among billions of galaxies.

This is an illusion. There can be, for man, no reality except as he (or others of his fellows) experiences that reality. This human experience is a part of every observation—of every conclusion that man can make concerning the nature of the universe. It is the spirit of man, his mind and his soul, that dissects the atom and learns to release its awful power. It is his spirit that gazes through the telescope into the depths of space—that sits in judgment on every conclusion of the philosopher. This is the divine mystery. The human soul is real—just as real as any of the data it accumulates about the universe.

And because the spirit of man is real, there is, by that very fact, spirit in the universe. This is the 5th dimension of reality. It is man's faith in his experience of that reality. It breathes emotions and values into the cosmos.

Without this ingredient of man's faith in his studies, science ceases. This human factor, this spiritual quality in all experience, makes this a spiritual universe in which we live—we can have absolutely no knowledge of anything else. There is no reality that does not have this 5th dimension, this subjective factor of the yearning, living soul of man.

Deny this 5th dimension and man is wracked, naked and alone, a helpless bit of protoplasm on the senseless Wheel of Time, a bitter victim of a grim, cosmic jest.

Affirm it, and man stands proudly on the threshold of the future—courageously—gloriously—truly a living soul in a living universe!

Sincerely,

Thomas P. Butcher M.D.

An Invitation to the Doctors of Kansas

The Shawnee County Medical Society cordially invites all members of the Kansas Medical Society and neighboring areas to attend the Centennial meeting of the Kansas Medical Society in Topeka.

As the Kansas Medical Society celebrates its 100th birthday and 100 years of service by the doctors of Kansas to its citizens, this annual meeting will be the largest and most elaborate ever planned by your state Society.

C. W. Bowen, M.D., President
Shawnee County Medical Society

Program for Monday, May 4, 1959

Topeka Fairgrounds, 17th and Topeka Blvd.

"MEDICAL FRONTIERS"

7:30 Breakfast, House of Delegates, Florentine Room, Jayhawk Hotel

9:30 Exhibits Open
Fairgrounds, 17th & Topeka Blvd.

FIRST GENERAL SESSION

10:00 "Changing Aspects of Medical Education"

10:00 Future Trends in Medical Education

William R. Willard, M.D., Vice President, University of Kentucky, Lexington, Ky.

10:50 Future of Financing Medical Education

Ward Darley, M.D., Executive Director, Association of American Medical Colleges, Evanston, Ill.

11:40 Intermission to Visit Exhibits

12:00 Luncheon, Social Hour

SECOND GENERAL SESSION

1:30 The Education of a Physician

Karl A. Menninger, M.D., Chief of Staff, The Menninger Clinic, Topeka, Kans.

2:30 Panel on the Subjects of the Day

Franklin D. Murphy, M.D., Chancellor, University of Kansas, Lawrence, *Moderator*

Ward Darley, M.D., Evanston, Ill.

Mahlon H. Delp, M.D., Kansas City, Kans.

Karl A. Menninger, M.D., Topeka, Kans.

Wm. R. Willard, M.D., Lexington, Ky.

4:00 Exhibit Hall Will Be Open

7:00 Dinner

Kansas Academy of General Practice

Kansas Medical Golf and Skeet Association

Golf, Shawnee Country Club
Skeet, Topeka Gun Club

6:30 Social Hour

Shawnee Country Club

7:30 Dinner

Shawnee Country Club

Program for Tuesday, May 5, 1959

Topeka Fairgrounds, 17th and Topeka Blvd.

9:30 Exhibit Hall Open—Registration

10:00 The Role of Government in Medicine

Elliott L. Richardson, Assistant Secretary, Department of Health, Education and Welfare, Washington, D. C.

10:50 The Future of Medicine and Labor

William A. Sawyer, M.D., Consultant for International Association of Machinists, Rochester, New York

11:40 Exhibit Hall Open

12:00 Luncheon, Social Hour

1:30 The Future of Health Insurance

James A. Stuart, M.D., Executive Vice-President, The National Blue Cross Association, Inc., Rochester, New York

2:20 Panel on Topics of the Day

E. Vincent Askey, M.D., Speaker, House of Delegates of the American Medical Association, Los Angeles, Calif., *Moderator*

Panel Members:

Elliott L. Richardson, Washington, D. C.

William A. Sawyer, M.D., Rochester, N. Y.

James E. Stuart, New York City, N. Y.

4:00 Exhibit Hall Open

7:00 Annual Banquet and Dance, Topeka Country Club

Program for Eye, Ear, Nose and Throat Section

Tuesday, May 5, 1959
Topeka Fairgrounds, 17th and Topeka Blvd.

9:30 Symposium on Glaucoma

Earl G. Padfield, M.D., Kansas City, Missouri, *Moderator*

Panel Members:

George F. Gsell, M.D., Wichita

Max S. Lake, M.D., Salina

Wm. M. Scales, M.D., Hutchinson

12:00 Luncheon, Social Hour

1:30 Report on Glaucoma Survey
Business Meeting

4:00 Adjournment

Program for Wednesday, May 6, 1959

Topeka Fairgrounds, 17th and Topeka Blvd.

8:30 Registration—Exhibits Open

9:00 Automotive Safety

Donald J. Schrum, Body Experimental Engineer, Studebaker-Packard Corp., *Moderator*

Development and Evaluation of Vehicle Safety Features; Human Engineering Research and Traffic Pattern Studies as Related to Accident Prevention

Robert H. Fredericks, Supervisor, Crash Safety Unit, Ford Motor Company

Developments in Safety Testing Techniques

Howard K. Gandelot, Engineer-in-Charge, Vehicle Safety Section, General Motors Corporation

Vehicle Crash Testing Techniques and Instrumentation

Larry H. Nagler, Administrative Engineer, American Motors Corporation

Questions and Answers

12:00 Adjournment

12:15 House of Delegates Luncheon, Jayhawk Hotel

Woman's Auxiliary to the Kansas Medical Society, Annual Meeting

May 4-6, 1959, Topeka, Kansas

Monday, May 4

9:00-4:00 Registration, Convention Headquarters, Exhibit Hall, Fair Grounds (18th and Topeka Blvd. Entrance)

12:00-2:00 Welcoming Salad Bar, Hospitality Room, In Honor of State Officers (Complimentary), Exhibit Hall, Fair Grounds

12:00 Past State Presidents' Luncheon, Holiday Inn Dining Room, 3820 Topeka Blvd.

2:30-4:30 Pre-Convention Board Meeting, Exhibit Hall, Fair Grounds

6:00 Social Hour, Jayhawk Hotel

6:30 General Practitioners' Banquet, Jayhawk Hotel, 7th and Jackson

Speaker, Rabbi Ferdinand M. Isserman, St. Louis, Missouri, "Many Races, One Humanity; Many Nations, One World; Many Religions, One God."

All Doctors and Wives Invited

Tuesday, May 5

9:00-4:00 Registration, Exhibit Hall, Fair Grounds

9:00 General Session, Exhibit Hall, Fair Grounds, Changing of the Guard

11:00 "Coffee Break"

1:00 Luncheon (Honoring Special Guests), Shawnee Country Club, 913 East Dudley Road—Program, "Moon Madness," Ticket $3.00

7:00 President's Dinner and Ball, Topeka Country Club, 2700 Buchanan

Everyone Invited

Wednesday, May 6

9:00-12:00 Registration, Exhibit Hall, Fair Grounds

9:00 Post-Convention Board Meeting, Exhibit Hall, Fair Grounds

10:00 Safety on the Highway, General Assembly Room, Fair Grounds—All Auxiliary members are invited to attend this meeting of the Kansas Medical Society.

11:00 Brunch, Topeka Country Club, 2700 Buchanan, Ticket $3.00

Kansas Academy of General Practice

Annual Assembly (Three Hours Category I)
Jayhawk Hotel, May 4, 1959, Topeka, Kansas

8:00 Registration, Florentine Room

9:00 "Office Ophthalmology and the Busy Practitioner"
Malcolm A. McCannel, M.D., Minneapolis, Minn.

9:50 Intermission

10:00 "Office Management of the Proctologic Patient"
George H. Thiele, M.D., Kansas City, Mo.

10:50 Intermission

11:00 "Question and Answer Period"
Floyd C. Beelman, M.D., Topeka, *Moderator*
Malcolm A. McCannel, M.D.
George H. Thiele, M.D.

12:00 Luncheon and Business Meeting
Floyd E. Dillenbeck, M.D., *Presiding*
President, Kansas Chapter of AAGP

A Real "Dutch Lunch." Don't Miss It!

6:30 Cocktail Hour, Roof Garden, Jayhawk Hotel

7:00 Dinner

8:00 "Many Races, One Humanity; Many Nations, One World; Many Religions, One God"

Rabbi Ferdinand M. Isserman, St. Louis, Missouri

Hosts for the Meeting

Topeka Physicians Planning the Centennial Meeting

GENERAL CHAIRMAN—FRANCIS T. COLLINS, M.D.

Program

Nathaniel Uhr, M.D.
Newman V. Treger, M.D.
Richard C. Tozer, M.D.

Arrangements

Richard R. Beach, M.D.

Scientific Exhibits

Chester M. Lessenden, Jr., M.D.
Samuel Zelman, M.D.
Homer L. Hiebert, M.D.
Abraham A. Fink, M.D.

Auxiliary

R. Dale Dickson, M.D.

Press

Floyd C. Beelman, M.D.
David E. Gray, M.D.
Willis L. Beller, M.D.
Oscar S. Proctor, M.D.
Vernon C. Wiksten, M.D.

Public Exhibits

Lucien R. Pyle, M.D.
John L. Lattimore, M.D.
John A. Segerson, M.D.
Rudolph Chess, M.D.

History

Orville R. Clark, M.D.

Hosts

D. Bernard Foster, M.D.
John E. Crary, M.D.
Harry J. Davis, M.D.

Commercial Exhibits

Benson M. Powell, II, M.D.

Chairman, K.M.S. Centennial Committee

Charles S. Joss, M.D.

Councilor Reports

Activities in the Different Geographical Districts of the State

First District

The past year has been a rather peaceful, quiet one, though not uneventful, for district one.

There have been no major problems of medical ethics. Nor have there been major problems between the various branches of the healing arts.

A new cancer detection center is in operation at the Winchester Hospital.

Cushing Memorial Hospital at Leavenworth is undergoing a complete revamping and building program which will result in an addition of 80 patient beds. All patient rooms will be new, with the old part of the building used for ancillary services. Atchison and Leavenworth counties have combined to obtain the services of a full-time radiologist.

Emerson Yoder, M.D., *Councilor*

Second District

The Wyandotte County Medical Society, which represents the entire district, reports no major problems during the past year. Our society is now operating under a new constitution which is so up to date that it has not yet gone to the printers. It has been quite ably drawn up by the Constitution Committee headed by Past President O. W. Davidson. Many new committees and changes are provided by this new document.

A few of our members have passed on to their final rest. Among others was Past President George M. Gray in the 103rd year of his life. His influence in the practice of medicine in this community will long be felt.

This district feels it a distinct honor that one of our members, the most able Glenn R. Peters, has been the choice of the Kansas Medical Society to start off our second century of existence.

J. Warren Manley, M.D., *Councilor*

Third District

During the past year I have met with every medical society in the district to become better acquainted with and more aware of the problems that they might have that involve the Kansas Medical Society.

It has been with pleasure that I have been cordially received and have renewed many acquaintances every place I went. Because of this I feel that I can better serve the physicians of this district.

G. R. Maser, M.D., *Councilor*

Fourth District

The component societies of the fourth district have functioned very much as they have in the past and no unusual problems have arisen.

The Southeastern Kansas Medical Society meets quarterly on a rotating basis with the county medical societies. These meetings have been well attended. The programs were well planned and educational. It is gratifying to note the increasing interest of the members of the fourth district in the extension courses and the postgraduate work at the Medical Center.

The members of the fourth district wish to express their appreciation to the medical auxiliaries for their efforts in organizing the nurses recruitment programs and the related sponsoring program.

Your councilor wishes to urge all members to contibute to A.M.E.F.

Dick B. McKee, M.D., *Councilor*

Fifth District

The county societies in the Fifth District presented no problems or requests for action on the part of their councilor during the past year.

The attendance at postgraduate circuit courses by members of this district has been good. Improvement in hospital facilities has been assured with the groundbreaking ceremonies in Manhattan for a new 100-bed Saint Mary Hospital. Interest in the activities of our state society and its centennial meeting in May is expressed throughout the district.

Ralph G. Ball, M.D., *Councilor*

Sixth District

In reviewing the activities of the society for 1958, I find that our active membership is the same as last year, which was 150. Fellowship membership remains the same, that is 4. Emeritus membership now totals 10, associate membership—9, and resident membership—1. Death claimed Drs. Emerson, Mills, Morris and Reed.

Members again assessed themselves $15 for American Medical Education Foundation and $5 for Science Fair.

The third and final polio clinic was held in August. Approximately 4,000 persons were inoculated, mostly for their third polio vaccination.

The Science Education Committee organized a

science institute in cooperation with several other groups which was attended by approximately 100 junior and high school students.

For the first time the Medical Society met in a joint meeting with the Auxiliary which proved to be so popular that it will be repeated each year.

Since Shawnee County Medical Society will be host for the state meeting, many meetings have been necessary to help plan the program.

The Rural Health Committee in cooperation with the local extension office devised and sent to approximately 4,000 families, questionnaires on various phases of health and the part the Medical Society could take in their health program. In October the first county-wide meeting was held at which some 600 farm women were present for the program on cancer.

We had, of course, our regular scientific programs which included both scientific and medical-legal subjects.

I am sure other things happened during the year, but these seem to be the ones which took most of our time and attention.

James A. McClure, M.D., *Councilor*

Seventh District

Only minor problems have arisen in the Seventh District during the past year. These have been or will be resolved at the local level. The unification of smaller societies within the district has not yet been accomplished, but is still under consideration.

Interprofessional relations have been harmonious. Quality and quantity of medical care have been more than adequate.

The members of the Lyon County Medical Society have willingly contributed time and effort and some financial sacrifice to the Lyon County Experiment. This program, under Blue Shield and Blue Cross auspices, is an investigation of the cost of furnishing prepaid service benefits, constituting medical and surgical care, visiting nurse service, laboratory and x-ray studies, hospital care, and partial drug coverage to citizens who are 65 years of age and older.

The spirit, interest, and cooperation of Kansas Medical Society members in District Seven have been excellent.

Edward J. Ryan, M.D., *Councilor*

Eighth District

All of the component societies have been functioning in a satisfactory manner. We have had a couple of major problems which have been brought to the attention of the councilor. These have been handled nicely at their origin.

An Eighth District meeting was held at Arkansas City in February with an excellent attendance. Only one county failed to show. The Twelfth District sent two representatives to this meeting. Our president, Dr. Thomas P. Butcher, was present along with Dr. Edward J. Ryan, president of Blue Shield, who served as moderator. Dr. Robert Purvis and Dr. James Fisher, board members, were present, along with Mr. Sam Barham and Mr. Tom Reed of Blue Cross-Blue Shield. The Relative Value Fee Schedule, Blue Shield fees, indigent care, and legislative matters were discussed.

The interest of members of this district in postgraduate work, both at the Medical Center and circuit courses, has been very gratifying. Our circuit course has experienced the best attendance in years, with many doctors attending from the neighboring counties in Oklahoma.

A tetanus clinic was held in Winfield in February, at which over 500 persons received their first, second, or booster shot. This clinic was set up to tie in with a disaster scheduled for that city in March.

May I again urge you to send in those contributions to the American Medical Education Fund and designate the school to which you wish it to go.

I wish to thank all members of the Eighth District for their cooperation in furthering the interests of the Kansas Medical Society. It has been a real pleasure to serve you.

James E. Hill, M.D., *Councilor*

Ninth District

This has again been a quiet year in the Ninth District. This councilor has again attended all councilor meetings and has endeavored to represent the district as well as possible in all matters. The majority opinion of the Saline County Medical Society, being the largest society within the district, has been carefully evaluated in order to help determine any policies necessary in voting at the council meeting.

It is also the pleasure of this councilor to announce that the Saline County Medical Society has voted an extra assessment in future years which will make the collection job much easier.

It is to be hoped that the district will be well represented at the centennial in Topeka in 1959.

L. S. Nelson, Jr., M.D., *Councilor*

Tenth District

Medical matters have proceeded smoothly in the tenth district this year. There have been no major crises or catastrophes. The indigent care problem appeared to grow for a while—however, that now seems to be largely a Social Welfare headache.

Attendance at circuit courses and other postgrad-

uate activities has been good. Generally, the caliber of local medical society meetings has been high.

By and large professional relationships within the tenth district have been good. At present, I see no reason why this may not continue, as this seems to be the general rule over the state.

The tenth district councilor plans to visit the counties throughout this district. Since I have been councilor for only a short time, this has not been possible.

John N. Blank, M.D., *Councilor*

Eleventh District

The Eleventh District has had a very successful year. The Sedgwick County Medical Society's programs have been outstanding with excellent speakers of national renown appearing. The program, as in the past, produced an information series of meetings and deserves a sincere expression of appreciation.

The Science Fair will again be held, being sponsored jointly by the Sedgwick County Medical Society and Wichita University. At this writing approximately 200 exhibits of intermediate and high school age students have been registered. This is a fine public relations movement for both organized medicine and science in our district.

Business-Education Day, an annual event, will be held again in 1959. This is an opportunity for the teachers in our schools to visit doctors' offices and see private enterprise in action. The hospitals of the city also cooperate in this activity which is deemed one of the best public relations programs of our society.

The annual Midwest Cancer Conference was again held this year with the usual outstanding panel of guest speakers. This annual meeting has become a tradition in Wichita and, despite occasional lapses in the weather, attendance has continued to increase from year to year. We sincerely hope that our colleagues will continue to support and attend this excellent meeting.

The Sedgwick County Medical Society, in cooperation with one of the local television stations (KARD-TV), has continued to present its regular monthly television program "Your Doctor Speaks." This has met with excellent response from the public. A variety of subjects have been covered from the aspects of the various types of medical practice to discussions of socio-economical problems.

Wichita was honored on March 5, 6 and 7, 1959, to be host to the National Rural Health Conference of the American Medical Association. This program was a great success and was well attended by representatives from the entire United States. We were honored to have Dr. Louis Orr, Orlando, Florida, president-elect of the American Medical Association, in Wichita to attend the meeting. Dr. Orr made several public appearances as well as participating in the program. Many other notable speakers also attended. The president of the Woman's Auxiliary to the American Medical Association, Mrs. Arthur Underwood, attended the meeting and participated.

Our medical auxiliary had a successful year. One of their finest programs was a meeting on medical memoirs. An 1890 doctor's office was set up in the Medical Society Building and a large collection of medical memorabilia was collected. The ladies dressed in gay nineties costumes and gave a most interesting program which was both historical and informative. The Auxiliary is sponsoring a group of young girls in its very active and successful Future Nurses Club. These girls will visit the University of Kansas Medical Center and the Topeka State Hospital as part of the program to interest girls in this field of medicine.

We also wish to thank the doctors who have continued to aid us in presenting material in our various high schools on Career Day.

Public relations during the year have been satisfactory, and we feel that our community acceptance is on a very high level at this time. There have been no great problems in this field of public relations.

This councilor also wishes to give his appreciation to all who have cooperated during the past year.

William J. Reals, M.D., *Councilor*

Twelfth District

All affairs of the medical societies in the Twelfth District have run very smoothly this past year. The present year, being the centennial of the Kansas Medical Society, has been looked forward to and several special functions have been planned.

One of the most enlightening and enjoyable occasions in the recent past was the visit of President Butcher and Oliver Ebel to the South Central Tri-County Medical Society. At this visit 50-year pins were awarded to the following seven men: Dr. H. L. Cobean, Dr. M. B. Flowers, Dr. A. R. Hatcher, Dr. D. E. Kisecker, Dr. C. H. Lockwood, Dr. W. H. Neel, and Dr. G. M. Wooden.

AMEF funds were bolstered from this district by 100 per cent contribution of the members. The Auxiliary also contributed to AMEF, one portion of it being in memory of Dr. R. T. Unruh.

The April meeting of the Tri-County Society will be devoted as usual to the medical school, and this is always an enjoyable association. During the remainder of the year other functions by the society and the auxiliaries will help to further commemorate this centennial year.

Albert C. Hatcher, M.D., *Councilor*

Thirteenth District

Medicine has pursued an even course in this district the past year. So far as visited, the component societies were functioning well. The number of new physicians was apparently at about the normal number.

H. St. C. O'Donnell, M.D., *Councilor*

Fifteenth District

The only report I have to make is that everything in the fifteenth district is very stable (that does not denote that we are horsing around). The "status quo" is static. There have been no changes in doctors and although the lack of spectacular progress is a fact, we have not lost ground. There is no news of significance and we are all happy to see general improvement in the area.

L. G. Glenn, M.D., *Councilor*

Sixteenth District

Go west, young doctor, go west—and settle down in a small town. This is as a tribute to our oldest honorary member of the Northwest Medical Society. Dr. Henry O. Hardesty passed away a few days ago, just under 89 years of age.

His Kansas license, No. 71, and narcotic license, No. 694, are landmarks to a medical pioneer who came to Jennings, Kansas, in 1901. He was one of the three charter members of the Norton-Decatur County Medical Society, later extending into the Northwest Kansas Medical Society.

He is a replica of the original country doctor who never took care of a patient in a hospital. If the modern country doctor, with his extensive training and education and modern facilities, could only retain the human interest for the personal and financial welfare of the patient, and follow the Golden Rule more closely, there would never be cause for the welfare state now on the horizon.

Our 43 members are showing good attendance at the postgraduate meetings. I have several requests for doctor locations in our district and hope to make contact with some ambitious graduates. The fact that two physicians, now at ages past 80, practiced in Jennings for over 50 years should be incentive for someone looking for a healthful practice and longevity.

Edward F. Steichen, M.D., *Councilor*

Seventeenth District

The medical situation during the past year has been very satisfactory. The area seems to be well covered although in several areas other doctors could be placed.

The hospital situation is being taken care of adequately. In Garden City a large new addition is under construction at St. Catherines Hospital. In Dighton a new hospital has been completed but as yet has not been opened. Bonds for a new rest home have been voted in Scott County.

H. Preston Palmer, M.D., *Councilor*

Committee Reports

Activities of the Different Special Groups of the State

Anesthesiology

H. F. Spencer, Emporia, Chairman; H. J. Brown, Winfield; P. H. Lorhan, Kansas City; D. U. Loyd, Wichita; R. S. McKee, Leavenworth; W. O. Martin, Topeka; B. A. Nelson, Manhattan; M. E. Nunemaker, Hutchinson; R. T. Parmlee, Wichita; L. J. Ruzicka, Concordia; J. R. Sumner, Hutchinson; F. C. Taggart, Topeka; E. T. Wulff, Atchinson.

This committee held a meeting in Emporia on February 8, 1959. The following subjects were discussed:

1. *The Status of Anesthesia in the Small Hospital in Kansas.* A plea for better and more adequate anesthetic records was made. It was also hoped that more doctors in Kansas would avail themselves of short courses in anesthesia such as the postgraduate course offered at the University of Kansas Medical Center. Every effort to improve anesthetic service in all Kansas hospitals was to be made.

It was also recommended that all anesthetic accidents, complications, or difficulties, as well as deaths on the table or in the immediate postoperative period, be reported to this committee.

2. *Blue Shield Fees.* Dr. Brown gave a very adequate and complete report of the status of the anesthetic fee schedule in the various Blue Shield plans. He also gave a new and original plan for a more equable payment.

The committee went on record as protesting the

$7.50 and $12.50 schedule now in effect on the $3,000 Blue Shield contract.

3. *The Nurse Anesthetist* (discussed under three catagories):

a. Nurse anesthetist employed by an anesthesiologist and working under his direct supervision.

b. Nurse anesthetist employed by the hospital.

c. Free lance nurse anesthetist.

The ethical, legal and financial aspects were discussed. It was again pointed out that the practice of anesthesiology is a part of the practice of medicine and should be practiced by a duly qualified physician. The nurse should be responsible to a physician who personally advises and supervises her work.

4. *The Program of Obstetric Anesthesia.* The committee went on record as favoring the payment of obstetric anesthesia by Blue Shield. It was recommended that complete and detailed records be kept of all such anesthetics, comparable to those kept for major surgical procedures, also that obstetric anesthetic accidents and complications be reported to this committee.

5. *The State Meeting.* It was suggested that an anesthesiologist be considered as a guest speaker for the 1960 session.

Harold F. Spencer, M.D., *Chairman*

Blue Shield Relations

D. G. Laury, Ottawa, Chairman; A. W. Beahm, Great Bend; P. L. Beiderwell, Belleville; M. A. Brewer, Ulysses; E. W. Christmann, Wamego; J. H. Coffman, Oberlin; J. A. Dunagin, Topeka; H. M. Glover, Newton; W. A. Grosjean, Winfield; N. E. Hull, Hays; P. Irby, Fort Scott; M. V. Laing, Kansas City; J. L. McGovern, Wellington; J. H. McNickle, Ashland; J. L. Morgan, Emporia; R. T. Nichols, Hiawatha; H. R. Schmidt, Newton; C. M. White, Wichita.

Your Committee on Blue Shield Relations held two meetings during the year in addition to 34 district meetings, two in each Councilor District.

The work of this committee during the past year was devoted to two major projects:

1. A study of hospital utilization.
2. Consideration of:

(a) Statement of Purpose of Kansas Blue Shield.

(b) A higher income level Blue Shield service contract.

The first was initiated at the request of the Joint Committee on Medical Economics and Hospital Utilization (composed of two members each from the Kansas Medical Society, the Kansas Hospital Association, Kansas Blue Shield, and Kansas Blue Cross). This study consisted of a review of approximately 2,200 hospital cases by 110 hospital staff committees appointed through the District Relations Committees. Approximately 500 medical society members participated in this project. The results of this study are now being tabulated.

After consideration of the Statement of Purpose and higher income level plan, the committee submits the following resolution for consideration by the House of Delegates:

Whereas, there has been some confusion over the role that Kansas Blue Shield should play in our changing economy, and

Whereas, the Blue Shield Board of Directors seeks guidance from the Kansas Medical Society in drafting long range plans, and

Whereas, your Committee and the 17 District Committees have spent considerable time exploring this problem, therefore be it

Resolved, That this Committee recommends to the House of Delegates of the Kansas Medical Society that the following Statement of Purpose of Kansas Blue Shield be adopted:

The purpose of Kansas Blue Shield is to help preserve the voluntary system of medical care as a segment of the traditional free enterprise system of the United States of America. Blue Shield was initiated and is sponsored by the Kansas Medical Society to make certain that voluntary health protection be made available to all people of Kansas at reasonable and fair cost and further to conduct research in medical economics.

Explicitly, "Voluntary health protection"—shall mean a system of financing the cost of necessary services of physicians and other allied professional groups to the greatest extent practicable through prepayment.

"Reasonable and fair cost"—shall mean the establishment of fair payments for health services. Such payments shall be regarded as payment in full (that is, service benefits) for covered services to patients with incomes below the ceiling levels stated in Membership Agreements, and Blue Shield shall make available a Membership Agreement with an income ceiling under which approximately 75 per cent of the population might qualify for service benefits.

Inherent in the problem of maintaining fair payments for health services at reasonable cost to the public is the need to keep pace with the changing cost of living and the changing incomes of the people. It is therefore proposed that Blue Shield payments for health services and the income levels in the Membership Agreements will be reviewed periodically and appropriate adjustments made.

"Research"—shall mean a constant effort at research and experimentation in medical economics, health benefits, and enrollment methods. And be it further

Resolved, That in keeping with this purpose the House of Delegates authorize Blue Shield to market a service contract with income limits of $4,000 single and $6,000 family (Plan C) with payments to physicians as outlined in the Fee Committee resolution; and be it further

Resolved, That the chairman of this committee disseminate detailed explanatory information concerning this program to all Kansas Medical Society members prior to the House of Delegates meeting.

At the request of Blue Shield your committee has considered the problem of evaluating the phrase "necessary, customary, and reasonable" charges in connection with payments to physicians for "extended coverage" Blue Shield contracts. The committee passed the following resolution:

WHEREAS, The Blue Shield Executive Committee is legally responsible for determining whether charges for services under extended coverage contracts are necessary, customary, and reasonable," and

WHEREAS, Your committee feels that cases involving unusual fees should logically be handled through organized groups within the Kansas Medical Society and that such determination can best be adjudicated at the district level, therefore be it

Resolved, That the committee recommends to the House of Delegates that the District Blue Shield Relations Committees be designated as Adjudication Committees for reviewing unusual charges under the Blue Shield Extended Coverage contracts.

D. G. Laury, M.D., *Chairman*

CHILD WELFARE

T. C. Hurst, Wichita, Chairman; M. J. Blood, Wichita; R. D. Boles, Dodge City; M. S. Boyden, Lawrence; G. E. Burket, Jr., Kingman; W. H. Crouch, Topeka; D. R. Davis, Emporia; R. L. Dreher, Salina; F. A. Gans, Salina; G. F. Jordan, Wichita; H. P. Jubelt, Manhattan; W. F. McGuire, Wichita; E. A. Martin, Parsons; R. N. Shears, Hutchinson; T. E. Young, Winfield.

The Child Welfare Committee has met but once in this past year. The problems, programs, and studies that have previously absorbed the attention of the committee continue to do so. Inasmuch as the complexion of this group has changed but little in the past few years, a continuity of interest is maintained.

Dr. Mary Boyden and her subcommittee are in the process of preparing a recommendation relative to the more efficient use of the rehabilitation program at Parsons as a further step in their study of the problem of the physicially and mentally handicapped children of Kansas.

Both Dr. William Crouch and Dr. Hilbert P. Jubelt have been actively engaged in the formation of the State School Health Council, and as physician members will expend their energies in fostering the development of such committees at the local levels over the state. Such groups are complex and are representative of all segments of society and organizational units, so this will be a major undertaking which the Child Welfare Committee will actively support.

Dr. F. A. Gans has organized and put into operation the Poison Control Center in Salina. Thus there are now eight such centers in our state. The listing was recently published in the *Board of Health News.*

Dr. William Crouch, in his dual role of stalwart member of the Child Welfare Committee AND chairman of the Perinatal Welfare Committee, continues to investigate this problem and make recommendations to this committee. He, with Dr. Jubelt and Dr. Young, has now published *Standards of Care for the Newborn* in the November, 1958, issue of the JOURNAL OF THE KANSAS MEDICAL SOCIETY. This committee urges all who have contact with newborn care—nurses, individual physicians, hospital administrators, etc.—to familiarize themselves with this material.

Dr. William McGuire has been actively interested in programs to stimulate interest in the physicial fitness of Kansas children. At the present time he is collecting pertinent information about the tests recommended by the American Association for Health, Physical Education, and Recreation. No doubt this committee would approve such a program; and if so, would strongly recommend it to the School Health Council.

The Child Welfare Committee wishes to be of service to the members of the Kansas Medical Society. It can do so only by functioning, and it can function only if ideas or problems are presented.

Thomas C. Hurst, M.D., *Chairman*

CONSERVATION OF EYESIGHT

L. L. Calkins, Kansas City, Chairman; B. J. Ashley, Topeka; F. T. Cultron, Salina; J. E. Hill, Arkansas City; D. O. Howard, Wichita; H. L. Kirkpatrick, Topeka; M. S. Lake, Salina; D. T. Loy, Great Bend; H. E. Morgan, Newton; W. M. Scales, Hutchinson; K. W. Stock, Topeka; D. P. Trimble, Emporia; D. D. Vermillion, Goodland; F. E. Wrightman, Sabetha.

The Committee on Conservation of Eyesight met on September 7, 1958, at the Jawhawk Hotel in Topeka, in conjunction with the state supervising ophthalmologist, Dr. Karl Stock; representatives of the Services for the Blind Division of the State Department of Social Welfare, Miss M. Blase and Mr. Harry Hayes; the president of the Kansas Medical Society, Dr. T. P. Butcher, and the executive secretary of the Kansas Medical Society, Mr. Oliver Ebel.

Previous glaucoma detection programs in Hill

City where 494 persons over 40 years of age were examined, and in Phillipsburg where 944 persons were examined, were considered by the committee as a worthwhile and successful enterprise which had been carried out by the Services for the Blind Division with the cooperation of Dr. Stock, Dr. L. L. Hyde of the Kansas University House Staff in Ophthalmology, and regional ophthalmologists. Similar programs were recommended in 1958 and have been carried out in Smith Center, Colby, and Oakley. A total of 4,000 patients have been examined and over 200 have been referred for more detailed examination. Over 2 per cent of those examined have been found to have established glaucoma previously unsuspected and now under therapy. Dr. Hyde will report in detail on these findings at a later date.

A section on *special* optical aids for the visually handicapped is now available at the University Medical Center, and Miss Blase has encouraged physicians seeking this and for indigent patients to utilize this facility. Appointments can be made in the refraction clinic at the Medical Center at any time (Tuesday or Thursday afternoons). It should be made perfectly clear to the patient and the participating ophthalmologists throughout the state, who should act as the only referring facility, that this is for optical aids for patients who cannot read ordinary print with the best conventional spectacle assistance available and that ordinary refractions will not be done. Refraction should be performed by the referring physician and all locally available aids should be tried before referral. Appointments can be made by writing Dr. Dorothy Shaad, Eye Clinic, University of Kansas Medical Center, Kansas City, Kansas.

The committee reiterated its position with regard to the mass testing of vision in preschool and school children and strongly recommended to those present that only the Snellen test card system be employed and that all more complicated and much more expensive machine tests be avoided. The statistical records of a large St. Louis survey, along with the personal experiences of the members of the committee, were unanimously in favor of the efficiency and reliability of this simpler technique. Further, the committee went on record as disfavoring any legislation which might be proposed to change the present system in the state of Kansas where the Snellen test is used by the state health agencies.

Two exhibits pertaining to eye care will be displayed at the Hall of Health in Topeka in conjunction with the centennial meeting of the Kansas Medical Society. These exhibits answer common problems relating to the eyes and are jointly sponsored by the Kansas Medical Society and the Services for the Blind Division of the Department of Social Welfare. Physicians are encouraged to view these exhibits.

Larry L. Calkins, M.D., *Chairman*

Conservation of Hearing and Speech

V. R. Moorman, Hutchinson, Chairman; C. W. Armstrong, Salina; J. A. Budetti, Wichita; H. R. Dreamel, Salina; E. L. Gann, Emporia; H. M. Glover, Newton; C. L. Gray, Wichita; W. P. McKnight, Wichita; E. E. Miller, Pittsburg; R. Montgomery-Short, Halstead; W. D. Pitman, Pratt; R. R. Preston, Topeka; G. O. Proud, Kansas City; R. E. Riederer, Olathe; M. J. Ryan, Kansas City.

One meeting has been held at the time of this report and one more meeting is proposed for the current year.

Dr. C. W. Armstrong has prepared for the committee a series of articles on deafness to be submitted to the JOURNAL OF THE KANSAS MEDICAL SOCIETY for consideration as to publication. The committee has discussed the articles and made such revision as it deemed desirable.

At the next meeting, a final recommendation will be made on a means of communication between the school nurse and physician so that adequate data can be compiled as to hearing problems in school children. It is proposed that a form be sent with the child to the physician's office so that necessary data and recommendations can be easily and quickly reported.

V. R. Moorman, M.D., *Chairman*

Constitution and By-Laws

A. W. Fegtly, Wichita, Chairman; T. C. Ensey, Marion; G. R. Hastings, Garden City; Y. E. Parkhurst, Belle Plaine; G. L. Thorpe, Wichita; F. E. Totten, Wathena; C. E. Vestle, Humboldt.

A meeting of this Committee was held Sunday, March 15, and after much discussion three important amendments were approved for presentation to the House of Delegates at the May meeting in Topeka and SHOULD BE VOTED ON INDIVIDUALLY.

AMENDMENT NO. 1

The Executive Committee feeling that its work could be ably assisted by formal inclusion of the First and Second Vice-Presidents, requested their inclusion.

BY-LAWS, Chapter XI, Section 19 shall be amended to read:

SECTION 19.

The Executive Committee of the Council shall be composed of the President, President-Elect, the First Vice-President, the Second Vice-President, the Secretary and the Treasurer.

The Committee shall meet at the call of the President and shall meet at least 6 times during the society year. They shall have authority to act in the interim between meetings of the Council upon all

matters which would ordinarily require approval of the Council, but which do not properly necessitate special meetings and which have not been delegated elsewhere by these By-Laws.

AMENDMENT NO. 2

WHEREAS at the last session in Kansas City, a special committee was appointed to study and recommend the advisability of the formation of a new state-wide committee whose function would be to correlate and advise future state meetings, making these more attractive for continued attendance and professional and economic interests of the members of the Society at large and;

WHEREAS the various Host Societies where meetings are held have expressed concern over which continuous attendance at the entire meetings has deteriorated, and ways and means could be made to make the entire meetings of greater interest and value to the membership and have special guidance in the preparation of the meetings format and;

WHEREAS the request has been made for a MEETING FORMAT COMMITTEE the following is being offered:

THE MEETING FORMAT COMMITTEE

(a) The President-Elect shall be the Chairman of the committee and shall call the committee in session as often as necessary but the first meeting shall be within 60 days after each annual session.

(b) Not longer than 30 days after the close of each annual session the President of the County Medical Society where the last meeting was held, with approval of his Board of Directors shall name an active member of his society to this MEETING FORMAT COMMITTEE, who shall serve until after the conclusion of the Annual Meeting held in the jurisdiction of his County Society. Should a vacancy occur a successor shall be appointed for the unexpired term.

(c) The President of each County Society in which annual meetings are held shall likewise appoint an active member of his Society to this committee whose term shall expire at the conclusion of the meeting held in that jurisdiction.

(d) The President of the Kansas Medical Society shall annually, not later than 30 days after taking office appoint a member from a component society, where annual meetings are not held, to this committee for a term of two years, except that first appointment after the passage of this amendment shall be one member for a one year term and one member for a two year term.

(e) The duties of the committee shall be to recommend to the Council the place and dates of the ANNUAL SESSION not less than two and one-half years ahead of the actual meeting and shall recommend to the Host society, the general format of the meeting, but this committee SHALL NOT select or secure speakers nor make local arrangements.

AMENDMENT NO. 3

The present system of electing the Nominating Committee from the list of Past Presidents was discussed. It was felt that a wider base for selection of Nominating Committee might encourage active participation of additional active members, result in a more democratic process in the selection of future Society Officers, and possibly uncover valuable, qualified and previously inactive members proficient for officers and leaders in society affairs and work. For these reasons and recognizing that nominations in the past are not criticised, but to the contrary deserve praise for their selections of candidates, well qualified with their abilities recognized because of former work in connection with the Past Presidents. For the above reasons the committee proposes the following amendment which offers an extremely democratic method of selection, and is hoped to bring into activity and interest members formerly quiescent or even critical.

BY-LAWS, Chapter VI. ELECTION OF OFFICERS, Section 1, Shall be amended to read:

The Nominating Committee shall consist of one member from each Councilor District who shall be selected by the Presidents of the component societies within the district. The member presented shall be an active member of a component society of the district he shall represent according to the following plan except that he may not be the Councilor nor may he be an elected Officer of the Kansas Medical Society at the time of his selection. Each Councilor shall arrange a meeting of the Presidents of all component societies in his district at a suitable time and place and such meeting shall be held not less than 120 days prior to each Annual Session for the selection of a member of the Nominating Committee. They shall immediately send the name of the selected member from his district to the Executive office. The President of the Society shall designate a member from this list as Chairman.

The Chairman shall call a meeting of the Nominating Committee, designating time and place, which shall prepare, not later than ninety days before the next Annual Session for publication in the JOURNAL OF THE KANSAS MEDICAL SOCIETY, a list of candidates for each elective office consisting of one or more candidates for the office of President-elect, First Vice-President, Secretary, Treasurer and Delegate-elect to the House of Delegates of the American Medical Association, and three or more candidates for the offices of Second Vice-President and Alternate Delegate to the American Medical Association. Whenever possible or practical the candidate or can-

didates for Treasurer shall be named from residents of the city or vicinity of the location of the central office. The Committee shall secure consent to each candidacy, and further agreement to serve if elected.

Other subjects involving matters important to the function of the State Society were discussed and recommendations for future disposition were made. No amendments being offered on them at this time.

A. The proper Succession in case of vacancy in the office of President-elect was thoroughly discussed, but because of the uncertainty of the time in his year of office that this should occur, it was impossible to set any more direct rule than is already provided for in the By-Laws for an election. No amendment is necessary.

B. The Blue Shield Relations Committee consists of one member appointed by the President from each of the seventeen Councilor Districts.

One district made the suggestion that the appointment be made from a list of members of the local Blue Shields Committee submitted by the local component society with preference, if any, expressed. The Committee approves the intent of the idea, and believes that if any or all districts should send in lists of those interested in that work, they would be welcomed and most favorably considered by the President in his appointments. However the initiative of this proposal can best come from the local source, rather than by general direction in the By-Laws.

In this connection it is recommended that each component society and for that matter each individual member interested in any phase of Society work, is invited and urged to send in names or lists of members who are interested in any committee or special work, to the Executive Office before January of each year, since committee membership is completed BEFORE each annual session.

C. The primary election held last session under a suspension of the rules and accompanied by amendments to the By-Laws was apparently satisfactory. Its future use was assured by adoption of the amendments by vote at the second meeting. While a time saver in the closing meeting, it adds time to the first meeting and its greatest value seems to be in that it gives the original delegates an opportunity to have a partial voice in the election since too frequently they are replaced by their alternates.

D. As a part of the Centennial and because since the printing in 1952 there have been innumerable important changes made in society formation and work, the Committee recommends that this House of Delegates requests and authorizes the Council to order reprinting of the Constitution and By-Laws to include all amendments adopted, including those adopted this year.

In conclusion I wish to thank the members of the Committee, Doctors Ensley, Hastings, Parkhurst, Thorpe, Totten and Vestle for their cooperation, and especially the members who together with Second Vice-President Glover and the efficient Executive Secretary, Mr. Ebel, attended and ably assisted in the development of these amendments and recommendations.

A. W. Fegtly, M.D., *Chairman*

Control of Cancer

G. L. Campbell, Arkansas City, Chairman; A. E. Bair, Independence; D. L. Berger, Mission; J. P. Berger, Wichita; C. S. Brady, Atchison; W. G. Cauble, Wichita; J. C. Dysart, Sterling; A. A. Fink, Topeka; W. A. Grosjean, Winfield; H. L. Hiebert, Topeka; J. D. Hilliard, Medicine Lodge; W. J. Kiser, Wichita; J. R. Kline, Wichita; J. L. Lattimore, Topeka; C. H. Miller, Parsons; N. C. Nash, Wichita; D. C. Reed, Wichita; L. W. Reynolds, Hays; R. H. Riedel, Topeka; D. S. Ruhe, Kansas City; R. P. Schellinger, Emporia; P. H. Schraer, Concordia; B. E. Stofer, Wichita; H. M. Wiley, Garden City.

The members of the Committee on the Control of Cancer of the Kansas Medical Society have assisted the Kansas division of the American Cancer Society in preparing the program for the Midwest Cancer Conference to be held in Wichita in the spring of 1959. Members have also assisted local communities in the drive for funds for the American Cancer Society. At the request of the United States Public Health Service, members of the committee were polled and a recommendation was forwarded to the Kansas Medical Society that it cooperate with the United States Public Health Service and with the Kansas Department of Health in making a survey of Kansas for the establishment of more accurate information concerning the incident and causative factors in carcinoma of the lung. No further work for this committee is planned in the next three months.

Garland L. Campbell, M.D., *Chairman*

Emergency Medical Care

F. C. Beelman, Topeka, Chairman; G. L. Ashley, Chanute; K. F. Bascom, Manhattan; R. W. Blackburn, Council Grove; G. L. Gill, Sterling; L. F. Glaser, Hutchinson; A. J. Horejsi, Ellsworth; C. C. Hunnicutt, Sabetha; H. H. Hyndman, Wichita; N. M. Jenkins, Salina; D. S. Klassen, Newton; G. E. Manahan, Lawrence; O. F. Prochkazka, Liberal; R. E. Speirs, Dodge City; J. F. Thurlow, Hays; D. P. Trees, Wichita.

The emergency medical care committee meeting reviewed the apparent responsibilities and functions of the committee.

FUNCTIONS OF THE COMMITTEE

It was agreed that the primary function was to stimulate and motivate, in so far as possible, medical

hospital staff planning and operations for emergency over-loads of patients from any source and at any time.

A secondary function was to coordinate local hospital disaster plans into a state wide and national plan as such plans become clear, reasonable and applicable. Further, to cooperate with similar emergency medical care committees, local, state or national.

BASIC SUGGESTIONS FOR EMERGENCY MEDICAL CARE

1. It is believed that hospitals can develop their own disaster plan and that all Kansas hospitals regardless of size, should have eventually a plan refined by trial operations for meeting local disaster patient loads.

2. The first step was to have an emergency medical care committee or disaster committee appointed for each hospital. Responsibility for the function of such a committee if not already in operation, should be with medical staff. It was suggested that these committees be made up of members who have functioned over a period of years with gradual change of committee members as desired by the staff. It was further suggested that such committee members serve on only one hospital mergency medical care committee.

3. All medical societies should have an emergency medical care committee. It should be the responsibility of the president of the local society to take the necessary measures leading to the establishment of such committees. Basic responsibility of the committee would be to assist hospitals in planning and trial operations, to review plans for duplication of assignments and activities, to coordinate and facilities the flow of requested medical personnel and supplies between hospitals in the area and when necessary from outside sources when requested by local hospital emergency medical care committees. In times of local disaster, chairmen of these committees could quickly ascertain the needs of each hospital and bring to bear on the problem personnel and supplies available within or without the area. Publishing names, addresses and phone numbers of the chairmen of local disaster committees would increase the ease of contact and flow of accurate information, professional personnel supplies. The committee also should stimulate hospital staff and local society meetings on disaster plans and problems.

WAYS AND MEANS OF OBTAINING ACTION

1. A joint committee should be established of members from the Kansas Hospital Association committee on disaster planning and the Kansas Medical Society committees on emergency medical care to meet quarterly and review all hospital emergncy medical care or disaster plans. The committee members also to act as observers at trial operations of plans when requested by hospitals and to provide a written review of suggestions or constructive criticism of procedures observed.

2. The Kansas Medical Society Committee on postgraduate education be requested to provide at the University of Kansas Medical Center or other suitable location, an annual one-day session dealing with disaster planning, operations, procedures and related subjects. The session to be open to both professional and lay members of hospital disaster committees and to other interested persons.

3. Each hospital emergency medical care or disaster committees obtain for use of its members the following:

A. Principles of disaster planning for hospitals and readings in disaster planning for hospitals both obtainable from the American Hospital Association, 18 E. Division St., Chicago, Illinois.

B. A copy of the American Medical Association *Journal* of January 24, 1959, containing the medical viewpoint on the subject of disaster planning.

C. A copy of "Operational Survival Plan, Health," from the Kansas State Civil Defense Division of the State Adjutant General's Office, State Capitol Building, Topeka, Kansas.

4. The committee further intends to obtain and make available information on the present status of disaster planning in Kansas hospitals and the names of committee chairmen and members of local medical societies.

F. C. Beelman, M.D., *Chairman*

ENDOWMENT

C. V. Black, Pratt, Chairman; R. R. Cave, Manhattan; H. M. Glover, Newton; K. R. Grigsby, Coffeyville; J. H. Lathrop, Concordia; D. C. McCarty, Medicine Lodge; R. A. Nelson, Wichita; R. J. Ohman, Dodge City; J. L. Perkins, Hutchinson; J. W. Randell, Marysville; R. Schrepfer, Kansas City; F. L. Smith, Jr., Colby; C. C. Underwood, Emporia.

The Endowment Committee held one meeting in Topeka, September 21, 1958. Guests were Doctors Wescoe and Wilson, and from the Endowment Committee of the University of Kansas were Mr. Youngberg, Mr. Barker, Doctors Schultz and Carr; Mr. Oliver Ebel and Mr. Rueben Dalbec.

It was decided to request the Council to act on the following suggestions: that upon the death of an important personage in the Kansas Medical Society, the central office immediately solicit the membership at large for contributions for a memorial fund in memory of the deceased.

There has been excellent cooperation between the Endowment Committee, A.M.E.F., and the Endowment Association of the University of Kansas.

Your chairman attended the meeting of the chairmen of the various states in Chicago, January 24-25,

and brings back the following report for 1958: 591 contributors gave $15,251. This is about 100 more contributors than last year and about $2,500 more from the doctors as the Society gave $2,400 in 1957. The breakdown is as follows: Dr. Bascom of Manhattan and Riley's Pharmacy of Wichita each gave $1,000. Dr. Bascom is one of 12 doctors over the whole U. S. who gave $1,000 or more. Other contributions: $500—1; $400—2; $22—4; $150—1; $100—20; $75—3; $50—25; $35—3; $25—50; $15—155; $10—189. Of these 591 contributors only 141 earmarked their gifts for the University of Kansas.

Topeka is again the banner city with 100 per cent contributors at $15 each. However, 10 per cent of their members gave in excess of this amount and two of them were $100 contributors. There were many 100 per cent counties; also 100 per cent councilor districts. The efforts of the councilors in putting this across is greatly appreciated. Nationwise and in Kansas about 10 per cent of the money obtained was from the efforts of the Woman's Auxiliary, and their contributions were in excess of what their husbands gave. I am sure they are also a great influence in the increased gifts from their husbands. The 1958 figures will not be available for some time.

The committee would like to make the following suggestions:

1. Following the example of Topeka that each county be requested by the House of Delegates to have each member contribute at least $15 to A.M.E.F.

2. That the following methods of securing additional contributions which were suggested at the January meeting, and which have been tried in other states, be considered for Kansas.

Many physicans are turning over to A.M.E.F. money they receive from Blue Shield for caring for a physician or his family who carry Blue Shield to pay the physician who would otherwise refuse pay for this service.

An A.M.E.F. contribution be made by a society on behalf of a guest speaker who has honored them and refuses pay for this service.

In lieu of Christmas gifts to referring physicians.

Cyril V. Black, M.D., *Chairman*

Fee Schedule

W. J. Reals, Wichita, Chairman, Pathology; W. L. Beller, Topeka, Radiology; H. J. Brown, Winfield, Anesthesiology; J. G. Claypool, Howard, Internal Medicine; D. R. Davis, Emporia, Pediatrics; J. E. Hill; Arkansas City, Ophthalmology; J. A. Howell, Wellington, General Practice; G. B. Joyce, Topeka, Orthopedics; J. G. Kendrick, Wichita, Obstetrics and Gynecology; J. L. Lattimore, Topeka; W. R. Lentz, Seneca, General Practice; C. M. Lessenden, Jr., Topeka, Dermatology; M. D. McComas, Jr., Concordia, Urology; W. P. McKnight, Wichita, ENT; P. W. Morgan, Emporia, Internal Medicine; C. R. Openshaw, Hutchinson, Thoracic Surgery; E. J. Ryan, Emporia, Blue Shield; S. L. Vander Velde, Emporia, Surgery.

The committee on fees has been active during the past year. The concept of using a subcommittee to conduct business was again used during the year just past, and the Executive Committee as well as the entire committee met on numerous occasions to consider business.

The first meeting of the subcommittee was held on August 12, 1958, at Emporia. At this meeting is was resolved that all future negotiations for fee schedules on contracts of any type would be based on the Relative Value Schedule as adopted by the House of Delegates last year.

The entire committee met on Sunday, October 5, at Wichita. At this meeting representatives from the Kansas Society of Anesthesiologists appeared with the request that their fees as paid through Blue Shield be increased. The committee on fees acted favorably on their request, passing a resolution requesting Blue Shield to increase payments to anesthesiologists as soon as possible. Considerable research was done by the committee on fees paid to anestheologists from other states, and this material was presented in the meeting by Mr. Rueben Dalbec of the Kansas Medical Society and Mr. Tom Reed of Blue Shield. The resolution follows:

Recommend to the Blue Shield Board that at present anesthesia fees be paid in the vicinity of $2.00 a unit of the Kansas Relative Value Scale for services under Plan A, and that the unit value be raised to an equitable basis with other payments when premiums are raised on January 1.

The American Medical Association requested that representation from the Kansas Medical Society appear in Memphis, Tennessee, on October 1 and 2 to testify on the Relative Value Schedule as adopted by Kansas. Accordingly, the chairman and Dr. Gordon Claypool, a member of the committee, made the trip to Memphis and appeared for two days before this Committee on Medical Practice. The experience of the Kansas Medical Society was given.

The subcommittee on fees met again on November 24, 1958, at Emporia to consider a number of problems. At this meeting much study was given to the possible conversion of the existing $3,000 plan and the $4,500 plan of Blue Shield to the Relative Value Schedule. It developed during the meeting, however, that if immediate conversion were done it would result in a large increase in dues to all of the members, especially in the lower income group. After much study it was decided that it would be impossible at this time to convert to the Relative Value Schedule, but the subcommittee strongly recom-

mended that future studies over the next several years be made in an effort to bring fees paid by the $3,000 and the $4,500 plan into line with the Relative Value Schedule.

The subcommittee recommended that the entire fee committee study the possibility of creating a new plan based on a flexible concept and designed to provide service benefits for a larger portion of the population, and that the fees should be paid according to the Relative Value Schedule at about $4.50 to $5.00 a point. Some form of deductible method also should be included in this program or made optionable as an aid in controlling usage. The subcommittee also hoped that Blue Shield might prepare such a plan at an early date to enable the fee committee to adopt concrete recommendations on this subject which could then be sent out to the doctors of Kansas so that they could act in an informed manner at the next House of Delegates meeting.

The entire committee met on March 1, 1959, at Wichita to consider the actions of the subcommittee. Guests present included members of the Kansas Society of Radiologists who wished to present their opinions and concepts of the Relative Value Schedule as it pertained to radiology. After much discussion it was suggested that a study of fees in the state of Kansas be undertaken in the near future. The Radiology Society was also asked to submit in writing its proposed relative value schedule for basic fees for x-ray coverage.

The chairman presented the material which had been previously given to the subcommittee on fees. This included the impractibility of rating plans A and B ($3,000 and $4,500) to the Relative Value Schedule as well as the many problems inherent in raising and lowering the fees in these plans. In addition, the committee on fees felt strongly that there is urgent need to strengthen the prepayment concept by writing a plan that includes a larger number of people in the state who wish service benefits. Accordingly, the following resolution was adopted:

Be it therefore resolved that the Fee Committee of the Kansas Medical Society recommends that if the House of Delegates approves in principle the development of a plan which will provide service benefits on a basis that will be applicable to 75 per cent of the Kansas population, that the plan be based on the Kansas Relative Value Schedule to the extent practicable at a dollar value per point of $5.00.

Be it further resolved that such a plan be based on the Relative Value Schedule as the schedule may be amended by the House of Delegates, such amendments to be presented by the Fee Committee at the same time this resolution is presented, and

Be it further recommended that the unit value as applied to such plan shall be annually reviewed by the House of Delegates.

The committee again wishes to thank Mr. Oliver Ebel and Mr. Rueben Dalbec for their help during the past year. The committee also wishes to thank the many interested Society members who have appeared before the committee and aided us during the year just passed.

William J. Reals, M.D., *Chairman*

Gerontology

E. G. Dimond, Kansas City, Chairman; J. O. Austin, Garden City; L. J. Beyer, Lyons; J. M. Catlett, Emporia; T. Dechairo, Westmoreland; D. M. Diefendorf, Waterville; F. E. Dillenbeck, El Dorado; G. M. Edmonds, Horton; H. A. Flanders, Hays; V. L. Jackson, Altamont; Ronald McCoy, Coldwater; J. J. Marchbanks, Oakley; R. F. Morton, Arkansas City; T. V. Oltman, Riley; J. W. Parker, Burlington; D. V. Preheim, Newton; E. S. Rich, Hutchinson; D. L. Rose, Kansas City; H. L. Songer, Lincoln; C. E. Stevenson, Neodesha; G. A. Surface, Ellis.

The Gerontology Committee has been aware of other activities of the Society in the field of aging and insurance during this year and has felt that until these goals were apparent that this Committee could best serve by waiting for further instructions from the Society.

The Committee was represented at a national meeting on problems of aging sponsored by the A.M.A. in Chicago. Other activities have been in the field of writing and distributing significant literature to the members of the Committee.

E. Grey Dimond, M.D., *Chairman*

History

R. R. Melton, Marion, Chairman; J. F. Barr, Ottawa; H. C. Clark, Wichita; A. W. Corbett, Emporia; R. H. Edmiston, Lawrence; J. G. Hughbanks, Independence; C. C. Nesselrode, Kansas City; G. R. Peters, Kansas City; R. A. Schwegler, Lawrence; G. S. Voorhees, Leavenworth.

This is being written February 10, 1959, exactly 100 years after the charter of the Kansas Medical Society was granted by the Territorial Legislature. The Committee on History is pleased to report that it has reviewed the manuscript of *A Century of Medicine in Kansas* and has found it factual, easy to read, and interesting. We hope you like it.

The committee suffered a great loss upon the death of Dr. W. M. Mills of Topeka, who had been a member of our committee for several years and was acting as chairman at the time of his passing. Dr. Mills had been active in the Kansas Medical Society for many years, and his community of Topeka is better for his having lived there.

The committee is grateful to the author of *A*

Century of Medicine in Kansas, Dr. Tom Bonner of the Department of History of the University of Omaha. We also wish to acknowledge the friendly and enthusiastic cooperation of Dr. Nelson and his associates in the Department of History, Mr. ——— ——— of the Department of Journalism, Mr. ——— — ——— of the University of Kansas Press, Mr. Nyle Miller and his associates of the Kansas State Historical Society. We are deeply indebted to Dr. Franklin D. Murphy, chancellor of the university, for his encouragement, his support, and his suggestions for the book; also to Dr. W. Clarke Wescoe, dean of the School of Medicine, and Dr. Vernon E. Wilson, his assistant, for their enthusiastic support of the work; and to Oliver Ebel and Rueben Dalbec for their constant help.

We urgently ask your support of the activities of this, our centennial year. Attend the meetings, Science Fair, Hall of Health. Partake of some special activity in your own community.

Ralph R. Melton, M.D., *Chairman*

Hospitals

E. R. Gelvin, Concordia, Chairman; G. B. Athy, Columbus; L. E. Beal, Fredonia; E. Beebe, Olathe; M. D. Christensen, Kiowa; J. D. Colt, Manhattan; E. T. Gertson, Atwood; J. L. Grove, Newton; G. F. Gsell, Wichita; R. H. Hill, Meade; D. B. Parker, Ness City; A. J. Rettenmaier, Kansas City; H. B. Russell, Great Bend; D. J. Smith, Overland Park; C. D. Snyder, Winfield; E. B. Struxness, Hutchinson; R. E. White, Garnett.

This proposed plan is the result of several years effort by this committee. It is recommended to the House of Delegates for consideration.

RULES AND REGULATIONS OF THE KANSAS VOLUNTARY COUNCIL ON PROFESSIONAL STANDARDS FOR HOSPITALS

Preamble

Recognizing that the medical staff is responsible for the quality of medical care in a hospital and must accept and assume this responsibility, and that the best interests of the patients are protected by concerted effort, the physicians practicing in the hospitals of Kansas do voluntarily subscribe to the Rules and Regulations hereinafter stated.

For the purpose of these Rules and Regulations the words "medical staff" shall be interpreted to include all physicians who are privileged to attend patients in the hospitals of the State of Kansas.

Whenever the term "governing body" appears it shall be interpreted to refer to the Board of Directors, Board of Trustees, Board of Managers, or other controlling group.

This council should contact the staffs of all hospitals in the state, regardless of size, urging the staff to request their governing bodies to join in the activities of the council.

The council further feels that hospitals of one or two staff members should unite with other small hospitals in the vicinity to establish combined staffs of at least six members.

ARTICLE I—NAME

The name of this organization shall be the "Kansas Voluntary Council on Professional Standards for Hospitals."

ARTICLE II—PURPOSE

The purpose shall be:

1. To insure that all patients admitted to the hospital or treated in the out-patient department receive the best possible care.
2. To establish minimum and optimum professional standards and criteria for hospitals in the state.
3. To provide the means whereby problems of a medico-administrative nature may be discussed by the medical staff with the governing body and the administration.
4. To review periodically the activities of member hospitals so as to help them maintain and improve their standards.

ARTICLE III—MEMBERSHIP

1. The council shall be composed of four members from the Kansas Medical Society, appointed by the Council of the Kansas Medical Society on recommendation of the president. They shall serve two year terms, and such appointments shall be staggered so that only two members retire each year.
2. Two members from the Kansas Hospital Association, also on staggered terms.
3. Members may be eligible for reappointment but not to exceed three consecutive terms.

ARTICLE IV—DUTIES OF THE COUNCIL

1. It shall fix and publish standards and regulations for member hospitals.
2. It shall periodically review and possibly modify the regulations as the need arises.
3. It shall actively contact all hospitals in the state and stimulate them to join.
4. It shall prepare an appropriate certificate signifying that the hospital has voluntarily met the minimum recommended requirements and shall present this to all eligible hospitals regularly at such intervals as the council may determine.
5. It shall serve as a referee and mediator in disputes arising in hospitals concerning the staff, the administrator and the governing body.
6. It shall organize for the purpose of conducting

business, keep records of all meetings and shall meet as needed, but not less than annually.

ARTICLE V—STAFF REGULATIONS

1. Active Staff Membership

a. The applicant shall present evidence that he holds a valid Kansas license to practice medicine and surgery.

b. The applicant for membership on the active staff shall be a graduate of an approved medical school, legally licensed in the State of Kansas to practice medicine and surgery, holding membership in a local medical society and practicing in the community or within a reasonable distance of the hospital.

c. Written application for staff membership including the physician's biography of educational attainment shall be presented and is subject, where necessary, to investigation and/or confirmation by a credentials committee of the staff.

d. Staff appointments are for one year and must be made and renewed by the governing board upon the recommendation of the staff.

e. Staff recommendation shall be made to the governing board as to the degree of service the service the applicant may be permitted to perform.

f. All applicants should be required a term of not less than six months probationary status where a staff member or members shall serve to assist, supervise, and evaluate his performance prior to recommendation for full staff privileges.

g. It is desirable that some additional training after internship be obtained before a physician is authorized unlimited privileges within the hospital. The extent to which this is to be enforced should be determined locally.

h. Any person practicing within a hospital on a restricted privilege shall be provided the opportunity to enlarge his privileges on the basis of additional training and experience with demonstrated proficiency in the enlarged area of activity.

i. The active staff shall establish and maintain a formal organization in which there shall be held an annual election to select a chief of staff and a secretary. There shall also be an executive committee and committees on records and on tissues.

2. Courtesy Staff

a. The applicant shall be limited in his practice to the professional services authorized by his valid Kansas license.

b. The courtesy staff shall be governed by the same regulations as those governing the active staff.

c. When courtesy staff members, other than those licensed to practice medicine and surgery in Kansas request admission of a patient to the hospital, it shall be the responsibility of an active staff member to make such admission and to assume obligation over the patient's care.

3. Emergency and Temporary Privileges

a. In case of emergency the attending physician shall be expected to do all in his ability to save the life of the patient, including the calling of such consultation as may be indicated.

b. The administrator of the hospital shall be empowered to make temporary appointments to the medical staff during this period and for the length only that such an emergency exists.

ARTICLE VI—RELATIONS BETWEEN STAFF AND GOVERNING BOARD

1. Active and continuing liaison functioning in both directions shall be established between the staff and the governing board.

2. The extent of hospital privileges of any professional individual shall be determined by the governing board on recommendation of the staff.

3. Where necessary, there should be a provision for joint meetings between the staff and the administrators and the governing board.

ARTICLE VII—PROFESSIONAL CARE

1. The Practice of Surgery

a. Assistance by an active staff member required,

1) During the applicant's probationary period.

2) For all major surgery.

3) Where the nature of a surgical procedure makes it impractical for an assistant to be present in the operating room, some provision should be agreed upon to provide assistance in the event of illness and or incapacity.

b. Consultation should be obtained,

1) In major surgical cases where the patient is not a good risk, and in all cases in which the diagnosis is obscure, or when there is doubt as to the best therapeutic measures to be utilized.

2) Wherever problems arise in the above areas potentially extending beyond the scope of any physician whose activities are limited.

c. Tissue examination

1) Tissues removed for pathological reason shall be examined by a competent pathologist and the report placed on the record.

2) Normal foreskins, tonsils, hernial sacs and similar specimens shall be exempt from required pathological examination.

3) A reasonable effort should be made to obtain autopsies.

d. A written report shall be made of all operative findings, the procedures employed and the pathology encountered.

e. Anesthesia shall be performed only by qualified personnel and a written record of the anesthesia shall be maintained.

2. In the practice of obstetrics, consultation with a qualified physician shall be required.

a. For all major complications.

b. In all first caesarean sections.

c. In all curettages or other procedures by which a known or suspected pregnancy may be interrupted.

d. In sterilization procedures because such are illegal in Kansas except when performed for adquate medical reasons.

3. In the practice of medicine, consultation shall be requested in all unusual situations where advice or assistance might be needed.

4. In the practice of Radiology,

a. Consultation, directly or by mail, on all questionable situations should be encouraged.

b. Radiation therapy shall be done only under the direct supervision of a Radiologist.

ARTICLE VIII—RECORDS

1. An admission diagnosis, written history, and record of the physical examination shall be completed on the chart within a reasonable time after admission and prior to surgery.

2. Adequate records on all admissions, births, deaths, laboratory procedures, radiological reports, treatment and surgery (including pathological reports on tissue removed) shall be maintained.

3. Minimum laboratory reports consisting of blood count and urine examination and in obstetrical patients including blood type and Rh factor shall be on the record within 24 hours. These tests should be done in the hospital upon admission or the report transferred to the record if done previously in the doctor's office.

4. A signed report of all consultations shall be made a part of the record.

ARTICLE IX—DISCIPLINE

1. Controversies relating to ethics, professional competency or rules infraction between the professional and the administrative personnel or the governing board shall be solved wherever possible through mediation of the local Executive Committee.

2. Where the above becomes impractical such problem shall be referred to the staff and then, when necessary, to this Council.

Raymond E. Gelvin, M.D., *Chairman*

MATERNAL WELFARE

R. G. Heasty, Manhattan, Chairman; A. H. Baum, Dodge City; R. M. Carr, Junction City; E. X. Crowley, Wichita; H. M. Floersch, Kansas City; H. M. Foster, Hays; D. E. Gray, Topeka; R. L. Hermes, Lawrence; J. G. Kendrick, Wichita; G. M. Martin, Topeka; O. L. Martin, Salina; M. D. Morris, Topeka; W. R. Roy, Topeka; C. E. Shrader, Newton; R. Sohlberg, Jr., McPherson; J. C. Schroll, Hutchinson; E. F. Steichen, Lenora; D. L. Traylor, Emporia; H. L. Wilcox, Lawrence; L. E. Woodard, Wichita.

The Maternal Welfare Committee has continued its main function of investigating maternal deaths. The reports of these investigations were reviewed by the entire committee in its meetings and after thorough discussion of the facts presented the committee arrived at its conclusions. One member of the committee was then assigned the task of writing a summary of the conclusions for publication in the JOURNAL. We have tried to make these summaries as educational as possible and I feel that in this respect we are gradually improving.

The committee encouraged the plans of the Perinatal Mortality and Morbidity Committee in setting up local study group interested in perinatal mortality and morbidity. Our committee suggested that the guide for these groups be sent to all members of the Kansas Obstetrical Society.

The question of inviting the physician involved in a maternal death to the committee meeting was discussed. It was finally decided that the physician should be asked to the meeting if he so desired realizing that his presence would prevent him from remaining anonymous to the members of the committee.

Doctor Ralph Reis of Northwestern University has consented to summarize the cases reported in the JOURNAL during 1958. This summary will appear in a future issue of the JOURNAL.

The committee agreed to work with the Kansas

Obstetrical Society in helping to set up a section on obstetrics in the Hall of Health Exhibit.

I wish to thank Doctor Evalyn S. Gendel of the Kansas State Board of Health for her untiring efforts in investigating old cases not yet reported and bringing us up to a position where we are now operating on a current basis.

Robert G. Heasty, M.D., *Chairman*

Medical Economics

B. A. Nelson, Manhattan, Chairman; J. N. Blank, Hutchinson; H. L. Bogan, Baxter Springs; K. L. Graham, Leavenworth; J. K. Griffith, Valley Falls; G. E. Kassebaum, El Dorado; J. A. McClure, Topeka; M. L. Masterson, Paola; M. B. Miller, Topeka; L. S. Nelson, Jr., Salina; E. B. Scagnelli, Dodge City; F. G. Schenck, Burlingame; C. H. Steele, Kansas City; G. C. Steinberger, Abilene.

The Committee on Medical Economics this year directed its efforts to the society's well developed and diversified insurance programs, further consideration of social security for physicians, malpractice insurance, insurance claim reporting, and the ever present baffling problem of indigent medical care.

The Group Life Insurance program was placed in effect with enrollment of all applicants, whether or not medically insurable. The committee feels this is an excellent supplement life coverage at an extremely low premium with especially generous coverage for the young doctor who needs most protection for his growing family. The contract is also available to doctors' wives and office managers.

The Washington National disability insurance was well accepted with its improved and expanded policy. Members should be reminded that further coverage with additional features is obtainable under present contracts.

The other excellent disability contract underwritten by the Commercial Insurance Company has been reopened. The northeast counties recently canvassed have added many new subscribers who had previously overlooked this insurance. All areas of the state will be canvassed as weather conditions permit. This policy may also be carried for executive secretaries of county societies. The committee feels that our membership is very well protected with both of these disability contracts available and is pleased that so many members carry both policies.

An excellent policy furnishing Accidental Death and Dismemberment insurance up to $150,000, at the very low rate of ninety cents per thousand, will be presented to the membership this spring. This is the same contract as carried by the majority of the membership of the American College of Surgeons. It is the first contract approved by the Kansas insurance commissioner as a straight group insurance contract with a master policy. The committee is much gratified to have it available to us.

Your committee recognizes that an increasing number of physicians seem to favor compulsory social security for physicians. The committee still is firm in its conviction that such an action by Congress would be most unfortunate, that the taxes levied would be excessive for the benefits obtained and subject to repeated increased levies without control, that the benefits never would be realized by most physicians, and that the thoughtful physician should fear being forced into a system with compulsory taxation and questionable benefits from which he could never henceforth withdraw.

Malpractice claims have become an increasingly serious problem with ever growing threats of large settlements. It is believed that high insurance coverage engenders claims for large sums, but, since so many doctors fear inadequate protection with low coverage, the very excellent Medical Protective Company is now offering additional supplemental coverage where it is desired.

The committee has recommended to the president of the society, that a committee on malpractice be formed, to investigate every potential malpractice suit, study the disability hazards involved, and furnish competent advice as to procedure, advisability of negotiating settlements, and modes of effective defense if a case reaches the courts. The suggested committee would be entirely advisory in nature and would not supply financial aid nor legal services.

An early meeting with the Board of Social Welfare gave promise of an arrangement for direct and separate negotiation with pharmacists, hospitals, and doctors on a workable basis. Subsequently, however, a bill was presented to the legislature which practically negated any form of fair compensation for medical services. A hurried canvass of representative county societies failed to elicit any support for an alternate plan to give the society complete control of expenditures for indigent medical care. Action of the legislature will be completed before this report is published and further moves by the society will be determined by that action.

The committee asked the president to appoint a member to serve as the society representative of the Health Insurance Council of Kansas. This is an organization of representatives of Kansas insurance companies and agents and a liaison seems advisable.

The standard insurance reporting form prepared for use of the membership is being widely used and is accepted by most insurance companies as adequate. The form has been revised slightly to clarify the information submitted by the essential brevity has been retained.

Barrett A. Nelson, M.D., *Chairman*

Medicare

L. S. Nelson, Sr., Chairman; T. P. Butcher, Emporia; H. M. Foster, Hays; G. B. Joyce, Topeka; C. W. Miller, Wichita; G. R. Peters, Kansas City; C. J. Wilen, Manhattan.

This is a thank you to all the physicians who have served so faithfully in the work of the late Medicare program. It has been tiresome, tedious, and thankless work. We found ourselves working for the government without recompense, and endeavoring to determine how to justify, by law, charges for which, according to law, we could grant just compensation. This invariably occasioned ill will on the part of the physicians involved even though the committee was powerless to do otherwise. Now, of course, the program has been changed by directive and the work lessened. The cost to the government was so much greater than anticipated (over $117,000,000 in a year) that the program has been drastically altered.

Another word of thanks is due the representatives of Blue Shield for their constant attendance at meetings and their continued study of the voluminous directives which were constantly changing the details of the program.

Our executive secretary, Mr. Oliver Ebel, rendered invaluable service in caring for all the correspondence, as well as attending every meeting. His constructive idea resulted in dividing the state so that there would be five committees instead of one. This is a very welcome change which relieved congestion, and if some form of Medicare is again tried the work will never be as voluminous as previously.

Again a sincere thanks to all who devoted so much effort in behalf of the members of the Kansas Medical Society.

L. S. Nelson, M.D., *Chairman*

Mental Health

P. W. Thompson, Topeka, Chairman; A. J. Adams, Wichita; H. V. Bair, Parsons; A. P. Bay, Topeka; R. D. Brooks, Madison; O. R. Cram, Jr., Larned; J. A. Dunagin, Topeka; P. E. Feldman, Topeka; G. W. Fields, Scott City; T. L. Foster, Halstead; L. W. Hatton, Salina; G. W. Jackson, Topeka; P. C. Laybourne, Jr., Kansas City; R. A. Moon, Prairie Village; B. A. Nelson, Manhattan; F. C. Newsom, Wichita; W. F. Roth, Jr., Kansas City; W. C. Schwartz, Manhattan; W. O. Wallace, Atchison; H. V. Williams, Topeka; M. E. Wright, Lawrence.

The Committee on Mental Health has this year concerned itself almost solely with preparing proposals for changes in the laws regarding hospitalization of psychiatric patients. The committee succeeded, with the cooperation of Prof. Marvin Larson of the Washburn Law School, in completing this project in a form suitable for presentation to the Kansas legislators. The proposals were endorsed in large measure by Dr. Geoffrey Martin of the State Board of Health, the membership of the District Branch of the American Psychiatric Association, and by Dr. George Jackson of the State Board of Social Welfare.

Considerable groundwork has been done by Prof. Larson with the Probate Judges Association and with the Bar Association. Judge E. Newton Vickers of Shawnee County has been most cooperative in advising the committee. More work is still to be done with the Legislature.

The general purpose of these proposals is to make the law regarding the mentally ill more consonant with advances in medical thinking about psychiatric patients.

Prescott W. Thompson, M.D., *Chairman*

Necrology

O. R. Clark, Topeka, Chairman; D. E. Gray, Topeka; R. Greer, Topeka; D. Lawson, Topeka; J. A. Segerson, Topeka.

The Committee on Necrology submits the following list of members whose deaths have been reported since the last meeting of the House of Delegates:

Name and Address	*Age*	*Date 1958*
Dr. Adelbert L. Suwalsky, Leavenworth	79	Mar. 27
Dr. Oman Reuben Brittain, Salina	79	Apr. 3
Dr. Chester Earle Joss, Topeka	73	Apr. 22
Dr. Minutte Smith Mundell, Hutchinson	81	Apr. 24
Dr. Elmer Andrew Miner, Independence	87	Apr. 25
Dr. Joseph H. Buckles, Waverly	82	May 11
Dr. Floyd Eldridge Wallace, Chase	78	May 17
Dr. Francis Claybourne Basham, Eureka	48	May 22
Dr. Joseph David Pettet, Pittsburg	83	May 25
Dr. William Merrill Mills, Topeka	75	May 26
Dr. Albert Beam, Americus	87	June 2
Dr. Joseph Rudolph Betthauser, Hays	69	June 3
Dr. Jacob Harlow Enns, Newton	76	June 26
Dr. John Albert Phillipsen, Wellington	86	June 28
Dr. Ralph Waldo Emerson, Topeka	65	July 1
Dr. Durrell Keeling Knight, Kansas City	63	Aug. 4
Dr. Andrew J. Turner, Garnett	89	Aug. 4
Dr. George Morris Gray, Kansas City	102	Aug. 12
Dr. Joseph A. Poppen, Burr Oak	82	Aug. 16
Dr. Henry Osmond Hardesty, Jennings	88	Aug. 17
Dr. Paul A. Binter, Wichita	43	Aug. 26
Dr. John Raymond Shumway, Pleasanton	80	Oct. 2
Dr. Paul Ernest Koerber, Russell	82	Oct. 6
Dr. Frank A. Kinnamon, Concordia	79	Oct. 9
Dr. Athol Cochran, Pratt	71	Oct. 19
Dr. Thomas Elmo Smith, Independence	80	Oct. 21
Dr. Ernest Elwood Tippin, Sr., Wichita	67	Oct. 30
Dr. Walter James Singleton, LaCrosse	65	Nov. 7
Dr. Avery Mortomer Garton, Chanute	75	Nov. 27
Dr. Harold Thoes Morris, Topeka	63	Dec. 3

Dr. John Fredrick Northrup, Topeka	83	Dec. 7
Dr. William S. Swart, Girard	83	Dec. 19
Dr. William Preston Sterrett, Kansas City	100	Dec. 21
Dr. William Wallace Reed, Topeka	78	Dec. 22
		1959
Dr. Edgar Sylvester Haworth, Wichita	78	Jan. 9
Dr. Arthur Whitaker, Atchison	54	Jan. 14
Dr. Claib Bosworth Harris, Sr., Garnett	83	Feb. 4
Dr. Jacob Franklin Gsell, Wichita	85	Feb. 12
Dr. Rudolph Theodore Unruh, Kinsley	59	Feb. 20
Dr. Lewis David Johnson, Chanute	81	Mar. 2
Dr. Claude William Inge, Concordia	75	Mar. 2
Dr. John Donald McCrary, Manhattan	32	Mar. 6

Orville R. Clark, M.D., *Chairman*

Nominations

L. S. Nelson, Sr., Salina, Chairman; C. M. Barnes, Seneca; C. W. Miller, Wichita; Haddon Peck, St. Francis; H. N. Tihen, Wichita.

The Nominating Committee of the Kansas Medical Society for the current year presents the following slate of candidates for Society offices:

President-Elect

Dr. Frederick E. Wrightman, Sabetha; Washington University School of Medicine, 1917; cardiology.

First Vice-President

Dr. Harold M. Glover, Newton; University of Illinois College of Medicine, 1916; surgery.

Second Vice-President

Dr. Norton L. Francis, Wichita; University of Nebraska College of Medicine, 1935; otolaryngology.

Dr. H. Penfield Jones, Lawrence; Harvard Medical School, 1931; surgery.

Dr. H. Preston Palmer, Scott City; University of Kansas School of Medicine, 1929; general practice.

Dr. Lloyd W. Reynolds, Hays; Ohio State University College of Medicine, 1934; surgery.

Dr. Edward J. Ryan, Emporia; University of Kansas School of Medicine, 1936; internal medicine.

Constitutional Secretary

Dr. George E. Burket, Jr., Kingman; University of Kansas School of Medicine, 1937; general practice.

Treasurer

Dr. John L. Lattimore, Topeka; Fort Worth School of Medicine, 1918; pathology.

A.M.A. Delegate, 1960-1962

Dr. George F. Gsell, Wichita; Rush Medical College, 1933; ophthalmology.

A.M.A. Alternate, 1960-1962

Dr. Cyril V. Black, Pratt; University of Texas, Medical Branch, 1930; surgery.

Dr. H. St. Clair O'Donnell, Ellsworth; Washington University School of Medicine, 1917; medicine and surgery.

Dr. Robert Sohlberg, Jr., McPherson; Northwestern University Medical School, 1934; general practice.

Additional nominations may be made from the floor at the time of election, during the 100th annual meeting of the Society.

L. S. Nelson, M.D., *Chairman*

Pathology

A. A. Fink, Topeka, Chairman; C. A. Hellwig, Halstead; W. E. Luedtke, Emporia; W. J. Reals, Wichita; C. J. Weber, Salina.

The pathologists had a meeting in Topeka on February 22, which was a joint meeting with representatives of the medical technologists of the State of Kansas.

Discussion of salary ranges and review of the salary ranges of technicians throughout the State of Kansas was engaged in. Also discussion of the fact that the medical technologist requirements for training and for certification are going to be upped as of the year 1962, when all medical technologists will have to take three years of college instead of the present two years of college and one year of training. After 1962, it will be necessary for those desiring registration to take three years of college and a fourth year of training, making the total program four years instead of three years, as in the past.

Liaison was established between the medical technologists and the Scientific Exhibits Committee of the Kansas State Mdical Society for an exhibit that they will have in the Scientific Hall.

It was further considered that we will have a joint committee, with pathologists serving on this committee, to set up some guidance for the colleges and universities in the State of Kansas as to the subject material that should be covered by premedical technology teaching. This committee will be appointed, and in the ensuing calendar year, hopes to be able to meet with some of the educators of the state and to come up with a definite guide for the colleges and universities in the State of Kansas to utilize in setting up

educational programs for premedical technologists.

It is the belief of the Chairman of the Committee on Pathology that this was a good year and no other specific problems were brought to the attention of the Committee, and the liaison between doctors and the allied field of medical technologists has been strengthened through the efforts of the Committee in the past years.

A. A. Fink, M.D., *Chairman*

Perinatal Welfare

W. H. Crouch, Topeka, Chairman; G. E. Burket, Jr., Kingman; H. P. Jubelt, Manhattan; R. C. Knappenberger, Wichita; G. M. Martin, Topeka; O. L. Martin, Salina; R. A. Nelson, Wichita; R. E. Pfuetze, Topeka; L. R. Pyle, Topeka; P. T. Schloesser, Topeka; R. N. Shears, Hutchinson; T. E. Young, Winfield.

The Perinatal Welfare Committee has met several times during the past year. We realized the completion of *Standards of Care of Newborns and Prematures in the State of Kansas,* a document designed to delineate environmental and medical treatment and care of infants born in hospitals in Kansas.

This document was printed in the November, 1958, issue of the Journal of the Kansas Medical Society and has been reprinted, bound, and sent to all hospitals in Kansas, the members of the Kansas Academy of General Practice, and to members of the obstetrical and pediatric professions in Kansas. We are in hope that this guide will be utilized in the manner intended by the committee.

Documents concerning the activities of perinatal mortality and morbidity programs in various hospitals have been collected, and a guide to formation of such programs has been prepared and distributed to all hospitals in Kansas with more than 500 deliveries per year and all physicians in Kansas. It is hoped that this will stimulate formation of perinatal mortality committees.

The committee is at present preparing material for a Perinatal Mortality Page to be published in the Journal of the Kansas Medical Society.

The committee will utilize statistics from the Statistical Division of the Kansas State Board of Health, data obtained from birth registrations, as a guide to future activities in the field of perinatal mortality. These statistics are to be compiled and reported at quarterly intervals to the Perinatal Mortality Committee members.

We, the members of the committee; feel that inroads into the establishment of a sound perinatal mortality study program in Kansas have been made and hope that the future committee will see fit to continue the directions of our work.

William H. Crouch, M.D., *Chairman*

Postgraduate Study

W. H. Algie, Kansas City, Chairman; G. E. Burket, Jr., Kingman; M. H. Delp, Kansas City; D. B. Foster, Topeka; S. R. Friesen, Kansas City; D. Lawson, Topeka; E. L. Mills, Wichita; E. J. Ryan, Emporia.

The Committee on Postgraduate Study met April 13, 1958, as a part of the Advisory Committee of the Department of Postgraduate Medical Education of the University of Kansas School of Medicine.

The previous year's postgraduate program at the Medical Center was reviewed at this meeting, and plans were discussed and formulated for the activities for the following year.

In November a letter was sent to all members of the Kansas Medical Society regarding the Kansas circuit course for 1958-1959 presented by the University of Kansas School of Medicine.

This has been the principal activity of the committee this year.

W. H. Algie, M.D., *Chairman*

Relations with Bar Association

K. E. Voldeng, Wellington, Chairman; L. G. Allen, Kansas City; T. R. Hamilton, Kansas City; J. B. Jarrott, Hutchinson; C. R. Rombold, Wichita; E. J. Ryan, Emporia; J. A. Segerson, Topeka; R. E. Stowell, Kansas City; F. E. Wrightman, Sabetha.

The first meeting was held on September 21, 1958, in the offices of the Kansas Medical Society. Those present were: Mr. Ford Harbaugh of Wellington; Mr. Charles Henshall of Garnett; Mr. John Royce of Salina; Mr. Lee E. Weeks of Kansas City; Dr. Karl Voldeng of Wellington, Chairman; Dr. J. B. Jarrott of Hutchinson; Dr. Charles Rombold of Wichita; Dr. J. A. Segerson of Topeka. Also present was Mr. Oliver E. Ebel.

It was deemed advisable to elect an over-all chairman for the combined committees, and Ford Harbaugh was elected to serve for one year in this capacity. Mr. Royce was elected secretary. The major portion of the time was devoted to a discussion of the various fields which the members felt might fall within the scope of this committee. In order to initiate some study and action in these fields, four committees were suggested. At a later date Chairman Harbaugh conferred with Dr. Voldeng and made the following committee appointments:

1. *Committee on Injury Rating*

   Charles Rombold, M.D., Wichita
   John Q. Royce, Salina

2. *Committee on Professional Relations*

   J. A. Segerson, M.D., Topeka
   Charles Henshall, Chanute

3. *Committee on Forms*

Edward Ryan, M.D., Emporia
Lee R. Weeks, Kansas City

4. *Investigating Committee*

Karl Voldeng, M.D., Wellington
Ford Harbaugh, Wellington

A meeting was scheduled for December to hear the report of these committees. However, circumstances involving several members necessitated postponement of this meeting.

This being a new committee, it will probably require some months before any concrete activity can be expected. All members expressed enthusiasm and interest in the possibilities for service to the two professions which the committee might offer.

Karl Voldeng, M.D., *Chairman*

Rural Health

V. E. Brown, Sabetha, Chairman; P. D. Adams, Osage City; J. G. Claypool, Howard; C. S. Davis, Galena; M. F. Frederick, Hugoton; R. E. Grene, LaCrosse; E. J. Grosdidier, Kansas City; H. W. Hiesterman, Quinter; P. H. Hostetter, Manhattan; R. L. Krause, Goessel; L. W. Patzkowsky, Kiowa; D. R. Pierce, Topeka; M. E. Schulz, Russell; R. R. Snook, McLouth; W. L. Speer, Osawatomie; E. F. Steichen, Lenora; C. R. Svoboda, Chapman; M. H. Waldorf, Jr., Greensburg; T. L. Wayland, Nashville; H. O. Williams, Cheney; D. H. Wood, Pittsburg; E. D. Yoder, Denton.

The Rural Health Committee and its advisory group has been very active this year. The National Rural Health Conference was held in Wichita, March 5, 6, and 7. This has required many meetings and many hours of work on the part of many people. The entire committee and several subcommittees have met at many times. The Chairman, with Rueben Dalbec, represented the State Committee and its advisory council at the meeting of the National Rural Health Council in Chicago in early September. Prior to this, there had been several meetings held with the advisory council, searching out subjects of special interest to people of rural Kansas.

During October and November, three meetings of the entire council and the advisory group were held in Topeka, at which time, details of the program were worked out with the cooperation of the National Council. Miss Arlene Hibbard, Executive Secretary of the National Council acted as coordinator and worked out many of the details related to the formation of this program. Our advisory group was composed of individuals representing the Farm Bureau, the Home Demonstration Department of the Kansas State College, the 4-H leaders, the Veterinary Association, the Kansas Council of Churches, the Grange, the Women's Auxiliary of the Kansas Medical Society, the Farm Press and several other organizations. We have had excellent cooperation from all members and attempts were made to contact many other allied groups. The National Rural Health Conference was quite successful and has done much to establish better rapport with some of the influential farm and rural organizations. The state-wide program for immunization against Tetanus has been a special project of the committee.

The chairman and the committee feel that it has been a special privilege this year to have been a part of the National Rural Health Conference. The entire committee believes that now is an ideal time to establish a State Rural Health Council as a semi-fixed organization to meet perhaps once a year to coordinate some of the projects related to health that are constantly a part of Rural American living.

We wish to express our appreciation to all those who contributed time and effort to make the Rural National Health Conference possible.

Virgil E. Brown, *Chairman*

Safety

J. A. Grove, Newton, Chairman; C. M. Barnes, Seneca; K. W. Carbaugh, Mission; F. E. Dillenbeck, El Dorado; A. C. Eitzen, Hillsboro; A. E. Hiebert, Wichita; T. R. Hood, Topeka; C. T. McCoy, Hutchinson; G. R. Peters, Kansas City; H. E. Snyder, Winfield; R. C. Tozer, Topeka; R. P. Weltmer, Beloit.

There have been no formal meetings of this committee the past year.

Recommendations from the past year outlined a broad work program which will need several years work to see results. They were:

1. *Physical Standards for Driver Licensing.* A great deal of material from other states has been secured. In cooperation with the safety director of the Kansas Highway Department a set of standards is being evolved which will be ready for Society consideration and later legislative consideration.

2. *Home Safety.* Again a plea to the Society members to make themselves available to local organizations for talks on home safety.

3. *Ambulance Attendant Training.* Little has been accomplished in this field.

4. *Program at State Meeting on Safety.* This will bear fruit at the Topeka meeting, 1959.

John A. Grove, M.D., *Chairman*

Study of Heart Disease

R. F. Morton, Arkansas City, Chairman; D. R. Bedford, Topeka; E. G. Dimond, Kansas City; C. W. Erickson, Pittsburg; L. H. Leger, Kansas City; P. W. Morgan, Emporia; G. L. Norris, Winfield; L. O. E.

Peckenschneider, Halstead; D. C. Wakeman, Topeka; G. B. Wood, Wichita; F. E. Wrightman, Sabetha.

During the year we have met as a group and we have had several suggestions, including preliminary investigations in regard to the incidence of heart disease in the state and awakening the interest of the group itself in order to stimulate in their own hospitals and adjacent hospitals the course which is to be given to nurses locally in regard to cardiac nursing care.

Some of these programs have been presented in local hospitals and some material has been gathered so that other hospitals and groups desiring to study cardiac nursing care should contact the Kansas Heart Association, 633 Kansas Avenue, Topeka, addressing their inquiry to the executive secretary, Mr. Harold Hunt.

Also it has been suggested that we work out a program where we could contribute some amount of time to the state institutions in a cardiac disease detection and classification program. Dr. George W. Jackson, Director of Institutions, has been contacted, and further meetings along this line will be forthcoming.

Roscoe F. Morton, M.D., *Chairman*

Control of Tuberculosis

J. L. Morgan, Emporia, Chairman; A. L. Ashmore, Wichita; A. Baude, Topeka; R. M. Brooker, Topeka; J. A. Butin, Chanute; R. I. Canuteson, Lawrence; A. M. Cherner, Hays; R. F. Conard, Emporia; J. C. Dowell, Lawrence; M. J. FitzPatrick, Kansas City; J. K. Fulton, Wichita; R. A. Lawson, Chanute; J. M. Mott, Topeka; G. W. Nice, Topeka; R. M. Owensby, Mankato; C. Pokorny, Halstead; J. W. Spearing, Columbus; C. F. Taylor, Norton; P. H. Wedin, Wichita.

The Committee on Control of Tuberculosis has again spent a busy year.

The recommendations made during the previous year regarding changes in the photofluorographic units in the State Board of Health have been followed in a satisfactory manner.

The articles on the current status of tuberculosis which the Committee volunteered to prepare during the previous year are now ready for publication and will be submitted to the Kansas Medical Journal for publication serially and it is our plan that these articles will be bound at a later date and distributed as a pamphlet to the members of the Society. Dr. Martin FitzPatrick has done an admirable job of editing and coordinating these articles. They represent a great deal of work on the part of members of the Committee and they should be of great value to the practicing physicians of the State of Kansas.

Much consideration was given to the problem of supplying drugs to outpatients with tuberculosis. Dr. Roy Lawson surveyed the reports from twenty-eight states and we attempted to devise a program which would be applicable and acceptable for the situation existing in Kansas. Our final recommendation on this major item has not been crystallized and will constitute a major item of unfinished business for the incoming Committee to consider.

The Committee recommended to the House of Delegates that psychiatric services from the Larned State Hospital be made available to the State Sanatorium at Norton. This is being implemented through the offices of Dr. George W. Jackson, Director of Institutions.

The Committee recommended that the State Tuberculosis Sanatorium submit a list of the outpatients formerly seen at Hillcrest to the Kansas State Board of Health for follow-up. This has been done.

The Committee recommended to the Executive Committee of the State Medical Society (in the interests of expediency) that the Board of Health's request for $25,000.00 for the operation of chest clinics be approved.

The feasibility of tuberculin testing was discussed in detail and it was felt at this time we could not reasonably set up a state-wide program for this.

The Committee favored the use of ambulance services to the State Sanatoria for patients who are microscopically positive for tuberculosis.

The Committee reaffirmed its previous stand that the Norton Sanatorium be continued for the purpose for which it was established; namely, the treatment of tuberculosis.

It was the opinion of the Committee that it would not be improper to make the photofluorographic units available for surveys in the institutions under the State Board of Social Welfare.

The problems which this Committee passes on to its successors are: (1) Further consideration of the problem of distribution of antituberculosis drugs; (2) The need and feasibility of establishing and maintaining outpatient clinics for the treatment of tuberculosis.

John L. Morgan, M.D., *Chairman*

Bad driving conditions prevailed in less than 15 per cent of the fatal highway accidents in the United States in 1957.

Nearly 27 per cent of United States drivers involved in 1957 traffic fatalities were under 25 years of age.

More than 21 per cent of 1957 United States highway deaths occurred on Saturdays.

Special Report

Activities of Affiliated Groups and Committees

Blue Shield

In accordance with annual custom, the following constitutes a report by the Blue Shield president to Kansas physicians. Pertinent to this report are discussions of enrollment and finances, major activities of the past year, and some consideration of Blue Shield philosophy.

Enrollment continued to gain, the net increase being 15,097 members. This reasonably satisfactory increase occurred in the face of already large enrollment, and in spite of the vast variety of sickness and disability policies offered by various companies. Total Blue Shield membership at the end of 1958 was 527,375.

Financially, the situation was not quite so satisfactory, but was anticipated. It was necessary to utilize reserves in the amount of $535,924 during 1958. This occurred in spite of some economy in operating expenses. It resulted primarily from the increase in benefits authorized two years ago. Contributing was some increase in usage. Payments to physicians during 1958 amounted to $5,859,205.96. Reserves for case and operating expenses still amount to a healthy 3.26 months' supply, and Blue Shield is in good financial condition. A very slight rate increase was necessary to prevent overusage of reserve funds and to preserve this condition.

Blue Shield activities during the past year have been numerous and constructive. They have resulted from energetic and unselfish efforts by the Board of Trustees, Executive Committee, and staff, aided by the advice and generous assistance of the Kansas Medical Society through its officers, Council, and committees. All major moves have been made only after consultation with the appropriate medical society committee.

The usual efforts have been made to expand enrollment in the basic contracts, Plan A and Plan B. After lengthy discussion with the Fee Committee of the Kansas Medical Society, it was decided to defer, temporarily only, the adaptation of these existing plans to the relative value fee schedule. Comprehensive and major medical contracts are now available to large employee groups. These contracts are relatively expensive, but they are very nearly inclusive in their coverage of medical services on a coinsurance or deductible basis. Thus a further prepayment service is offered to people in these groups. Also now available to groups is a prolonged illness rider, modeled somewhat on the extended benefits rider, but offering coverage for a variety of chronic and often catastrophic illnesses. It is not anticipated that there will be immediate wide usage of these three contracts.

The Lyon County experiment was initiated prior to the recent A.M.A. action on care for the aged. The scope of the experiment embraces only a limited geographic area for a limited period of time. During this time, contract holders who are 65 years old or older will receive without additional charge virtually complete coverage for home and office care, hospital care, home nursing services (by a visiting nurse), laboratory and x-ray services in and out of hospital, and partial drug coverage. Younger contract holders will have visiting nurse service available. The purposes of the experiment are to determine the possible saving which may result from home care as opposed to prolonged hospital care, and to gather as much valid statistical cost and usage data as possible with the objective of ultimate economical prepaid coverage for this older group.

Blue Shield, together with Blue Cross, the Kansas Medical Society, and the Kansas Hospital Association, is participating in an active state-wide study of hospital usage.

In the process of preparation now by Blue Shield and the Kansas Medical Society for submission to the House of Delegates is a plan which is adapted to the relative value fee schedule on a generous dollar for point basis, and which is designed to offer service benefits to a higher percentage of the population, in accordance with the desires of and instructions from the Kansas Medical Society.

In discussing the year's activities of Blue Shield, it is impossible to mention all the minor decisions and adjustments which were made. It is impossible to mention all groups and individuals within the framework of the organization who have contributed time and effort. However, mention should certainly be made of the three Review Committees, which have made a conscientious effort to render fair fee decisions in difficult or unlisted cases.

We would like to feel that the philosophy underlying the Blue Shield structure and operation is identical with the oldest, best, and most ethical philosophy of medical practice. It is a philosophy which places the welfare of the patient first. The plan was designed to help the patient meet the cost of illness; it was designed to be of greatest benefit to the patient who could least afford the cost of such illness. Every phase of Blue Shield activity

should be directed with ultimate patient welfare in mind. To attain this goal, it is necessary that the various plans under Blue Shield be priced within reach of the patient; at the same time, it is necessary that remunerations to physicians be as adequate, fair, and equable as possible. It is impossible to satisfy everyone, but it will be a satisfaction to those responsible for Blue Shield administration if the physicians of Kansas will realize that we have only the above goals in mind.

To attain these goals, it is necessary to keep patients and physicians constantly informed of Blue Shield activities and additions. Information to patients is disseminated by local representatives, by lay members on the Board of Trustees, by Member Council, Farm Bureau, and other meetings, and by printed matter. The informational program for physicians is complex, and hinges upon active cooperation with many other structural units within the framework of the Kansas Medical Society. A brief review of these efforts is pertinent.

In the past year a new joint committee has functioned. Members are the president of the Kansas Medical Society, chairmen of the Fee Committee and the state Blue Shield Relations Committee, president of Blue Shield, and two members of the Blue Shield Executive Committee. Growing out of discussions by this group has been a clear wording of Blue Shield purpose, a clarification of the working arrangements and channels of communication between the Kansas Medical Society and Blue Shield, and a clarification of routes of communication between the individual physician and Blue Shield. These various points will be published in detail elsewhere.

The two Kansas Medical Society committees most actively concerned with Blue Shield are the Relations Committee and the Fee Committee. Both of these groups are constantly and currently informed of any major changes, such as contract details or fee schedules. Not only is this an informational medium; their opinions and advice are frequently sought and always appreciated.

Information is more widely disseminated through meetings with Blue Shield Relations Committees in each councilor district. These meetings are of great value; information reaches the local physician and local opinion reaches Blue Shield. Thirty-four such meetings have been held since the last annual meeting.

This two-way informational exchange takes place through many contacts with individual physicians, physician groups such as county societies and specialty advisory groups, and many other less organized approaches. Printed material is regularly sent to all participating physicians.

The Blue Shield program exists for the welfare of the patient. Inherent in this purpose is a need for sound plans and a constant search for new, effective, and acceptable approaches. Success hinges on physician cooperation, and only informed physicians can be asked to cooperate. Hence, the need for constant informational efforts, so that all physicians may feel that they are a part of the Blue Shield organization.

I want to thank all who have contributed so generously of time and effort during this past year. It has been a privilege to serve as president of Blue Shield.

Edward J. Ryan, M.D., *President*

PHYSICIANS' ACTIVITIES

Dr. Charles K. Wier, Wichita, has been appointed a member of the Committee on Fractures and Traumatic Surgery of the American Academy of Orthopedic Surgeons.

The January-February issue of the *Bulletin of the American College of Surgeons* carried a photograph and story about two Great Bend physicians, **Dr. Marion F. Russell** and his son, **Dr. Homer B. Russell.**

Dr. Ralph E. Bula, Lyons, was speaker at a recent meeting of the Rice County Medical Assistants' Society. He illustrated his talk on travel in the Caribbean Sea with pictures taken on a recent cruise.

Dr. Charles L. Woodhouse, Wichita, has been installed as president of the Cosmopolitan International Club of Wichita.

"Hemolytic Diseases of the Newborn" was the subject discussed by **Dr. Charles P. McCoy, Dr. Russell A. Nelson,** and **Dr. William F. McGuire,** all of Wichita, at the February meeting of the Sedgwick County Medical Assistants' Society.

A feature story in the *Kansas City Star* on Sunday, February 22, described the professional and home life of a husband and wife team of physicians in Garnett, **Dr. Robert L. Stevens** and **Dr. Mildred Julius Stevens.**

Dr. Marvin D. Snowbarger, a 1955 graduate of the University of Kansas School of Medicine, has

opened an office for general practice in Emporia. He recently completed a tour of duty with the Navy.

Dr. J. Warren Jacks, Pratt, is one of three young men who recently received Distinguished Service Awards from the Kansas Junior Chamber of Commerce.

A talk on "Social and Economic Problems in a Physician's Office" was given by **Dr. Norton L. Francis,** Wichita, before the Sedgwick County Medical Assistants' Society at a meeting on March 18.

Dr. Clement C. Vickery, Halstead, discussed public relations as guest speaker at a recent meeting of the Harvey County Medical Assistants' Society in Newton.

Dr. Charles M. Poser has been granted a year's leave of absence from his position as head of the Section of Experimental Neurology at the University of Kansas Medical Center to serve as medical executive officer for the World Federation of Neurology in Antwerp, Belgium. He is taking the position at the request of the National Institutes of Health, Washington.

An article by two Wichita physicians, Dr. William F. Powers and Dr. Cline D. Hensley, was published in the February 7 issue of the *Journal of the American Medical Association.* The title of the paper is "Circulating Blood Volume Changes Incident to Major Orthopedic Surgery."

Dr. W. Clarke Wescoe, dean of the University of Kansas School of Medicine, was speaker at a community dinner at Hays on March 10 promoting the building fund for St. Anthony Hospital.

Dr. John F. Lance, Jr., Wichita, recently became a diplomate of the American Board of Orthopedic Surgery.

Governor George Docking recently announced the appointment of **Dr. Maurice K. Borklund,** Independence, as coroner of Montgomery County.

Plans to move his practice from Axtell to Linn have been announced by **Dr. Salvatore A. Scimeca.**

Dr. Marlin W. Carlson, Ellinwood, who has been ill for several months after suffering a heart attack, has announced his retirement, to be effective on April 1.

ANNOUNCEMENTS

The annual Clendening Lecture at the University of Kansas School of Medicine was delivered by Dr. Edward H. Hashinger, professor emeritus of medicine and gerontology, on March 12. "Arthur E. Hertzler—the Kansas Horse and Buggy Doctor" was the subject of his tribute to the Kansas physician who was on the faculty of the school for over 30 years prior to his death in 1946. The Clendening Series was established in 1949 by the widow of the late Dr. Logan Clendening, also a pioneer in medical education at the Kansas School. Dr. Hashinger, who had residency training in the Halstead, Kansas Hospital founded by Dr. Hertzler, used personal memories in his tribute to the Kansas physician who received international recognition for his best-seller, "The Horse and Buggy Doctor."

Washington University School of Medicine, Division of Gerontology, will conduct its Third Annual Postgraduate Course in Geriatric Medicine, with special emphasis on heart disease and the psychosocial problems of later life, in St. Louis, Missouri, May 21, 22 and 23, 1959. This course will feature outstanding speakers from the St. Louis area and several authorities in the field of geriatrics from other universities. Clinical application of the basic principles of disease in later life will be stressed. The course is tuition-free and Category I credit will be granted to members of the American Academy of General Practice.

For further information address: Division of Gerontology, Washington University School of Medicine, 5600 Arsenal Street, St. Louis 9, Mo.

COUNTY SOCIETIES

Two hundred physicians and their wives and guests were present at the Jayhawk Hotel, Topeka, on March 2 to attend a dinner meeting of the Shawnee County Medical Society. Dr. Franklin D. Murphy, chancellor of the University of Kansas, spoke on "Higher Education" and contrasted the educational system in this country with that in Russia.

A plaque was presented Dr. Milton Miller in recognition of his professional and civic accomplishments during many years of practice in Topeka, the first such award ever given by the society.

Dr. Leonard J. Rader of New York City presented the scientific portion of the program at a meeting of the Sedgwick County Medical Society in Wichita on March 10. Additional speakers were Dr. Thomas P.

Butcher, Emporia, president of the Kansas Medical Society, and Mr. Oliver E. Ebel, Topeka, executive secretary.

For the third consecutive year the society in Sedgwick County is sponsoring the Wichita Science Fair. Dr. Hoyt C. Blaylock, chairman of the committee in charge of the event, is working with the following committee members: Dr. Marion A. Throckmorton, Dr. Eugene G. Anderson, Dr. H. Lee Barry, Dr. J. Walker Butin, Dr. Thomas J. Coleman, Dr. William F. McGuire, Dr. D. Cramer Reed, Dr. G. Gayle Stephens, Dr. Samuel L. Stout, Dr. Ruth S. Taylor, and Dr. Harry J. Wisner, Jr.

The Montgomery County Medical Society has announced the following list of officers to serve during 1959: president, Dr. Albert E. Bair; vice-president, Dr. William T. Read; secretary, Dr. Porter E. Barbera, and treasurer, Dr. Gerald C. Bates. Dr. Read practices in Coffeyville, the others in Independence.

The president and the executive secretary of the Kansas Medical Society, Dr. Thomas P. Butcher of Emporia and Mr. Oliver E. Ebel of Topeka, were speakers at a meeting of the Wyandotte County Medical Society in Kansas City on March 16. Dr. Butcher spoke on "Problems of the Aging" and Mr. Ebel discussed "Legislative Matters of Interest to Your Society."

BOOK REVIEWS

Long-Term Illness. Management of the Chronically Ill Patient. Edited by Michael G. Wohl, M.D. Published by W. B. Saunders Company, Philadelphia. 748 pages, illustrated. Price $17.

This rather bulky volume, too heavy to read in bed, represents the collaboration of 79 contributing authorities and consists of excellent reviews of individual diseases with the exception of the first 90 pages which are of a general nature dealing with such items as "home care, rehabilitation, and nursing procedures."

The individual disease sections covering such disorders as rheumatoid diseases, cardiovascular diseases, endocrine disorders, and the like are excellent. The authors are well chosen and their names are well known to any reader of current medical journals. The individual disease sections actually constitute a detailed survey of current concepts of treatment of these diseases. In this aspect the title of the book is a bit misleading in that it is a treatment manual for many diseases, some of which are not necessarily long-term illnesses.

It is a worthwhile book to have in a hospital or office library to be used in conjunction with other current treatment manuals now on the market. Its virtue lies perhaps in the excellent choice of authors and in the clarity with which treatment regimes are outlined.—*J.L.M.*

Death Notices

Rudolph Theodore Unruh, M.D.

Dr. R. T. Unruh, 59, president of the Edwards County Medical Society, died at the Edwards County Hospital in Kinsley on February 20. He had been ill for three days.

A graduate of the University of Kansas School of Medicine in 1930, Dr. Unruh served at a Mennonite mission in Africa for several years. He then practiced in Halstead until World War II, when he entered the service and was stationed in the Pacific. He had practiced in Kinsley since 1946.

Mrs. Unruh is now serving as president of the Woman's Auxiliary to the Kansas Medical Society.

Lewis David Johnson, M.D.

A physician who had practiced in Chanute 50 years before moving to Kansas City, Missouri, six years ago, Dr. L. D. Johnson, 81, died while on vacation in Santa Ana, California, on March 2.

Dr. Johnson received his medical education at the Denver College of Medicine, completing his work there in 1899. During the period from 1914 to 1951, he headed the staff of the Johnson Hospital in Chanute. He was an honorary member of the Neosho County Medical Society.

Claude William Inge, M.D.

An honorary member of the Cloud County Medical Society, Dr. C. W. Inge, 75, Concordia, died on March 2. After graduation from Barnes Medical College, St. Louis, in 1911, Dr. Inge began practice in Kansas in 1919, opening his office in Formoso. He retired in 1950.

John Donald McCrary, M.D.

Dr. John D. McCrary, 32, who has been practicing obstetrics and gynecology at the Nelson Clinic, Manhattan, was killed in an automobile accident near Florence on March 6. He was a graduate of the University of Nebraska College of Medicine, completing his work there in 1950.

Vascular Surgery. By Geza de Takats, M.D. Published by W. B. Saunders Company, Philadelphia. 726 pages, 382 figures. Price $17.50.

Vascular surgery—long neglected—has recently taken a new and dynamic life. The author states in preface, "I have been borne up by the conviction that it is in the very areas where technical advances are most frequent that there is the greatest need for a statement of fundamental principles. There must remain a home base, a foundation of basic facts which do not change even though their interpretation may have to be modified from time to time."

From there he plunges into the vast seas leading us through the extensive personal experiences that he and his department have traveled. He corrals the huge amount of material into a monograph of four parts and 655 pages.

Part One deals with the basic principles affecting vascular surgery, Part Two with methods of diagnosis, Part Three with vascular syndromes requiring surgical care, and Part Four with surgical technique.

The material is elemental enough to be used as a textbook for the student and resident, and comprehensive enough to be of great value to the surgeon —be he general or specialist. All redundancy has been eliminated.

Parts One and Two are concise and as interestingly written as basic science can be made. Part Three concerning vascular syndromes requiring surgery is the most voluminous. It is well written, liberally illustrated, and quite complete. Part Four on surgical technique is in atlas form, well illustrated, but probably too brief. Dr. de Takats apologizes because the work is a monographic one-man production—but he need not. It has a freshness that is delightful. Ample references show he has considered well the major work done by other investigators and surgeons.

Dr. Gaza de Takats has furnished an outstanding text and guide book that is needed and should be in every medical library.—*G.E.K.*

Anatomy of the Nervous System—Its Development and Function. Tenth Edition. By Stephen Walter Ranson, M.D. Revised by Sam Lillard Clark, M.D. Published by W. B. Saunders Company, Philadelphia. 622 pages, 434 illustrations, 11 in color. Price $9.50.

A comparison between the third edition of this standard textbook of nervous anatomy (1927) and the current tenth edition is instructive. The present edition employs a number of multicolored illustrations, includes the anatomic basis of cerebral arteriography, discusses reverberating circuits within the central nervous system, and includes photographs of electron microscopy. The suppressor zones of the cerebral cortex are described, and cortical autonomic nervous system representation is discussed, to mention just a few of the many advances in typography and neurological knowledge incorporated into the 1959 edition since the earlier edition.

The intent of the late senior author to incorporate sufficient knowledge of the physiology of the nervous system so that the medical student might better understand the structure of the nervous system has been maintained.

This book continues to hold its high standing as a basic textbook in the medical school curriculum. —*D.B.F.*

Medical Advances Affect Hospitals

Medical advances not only influence the community's total hospital bill but also affect the community's utilization of hospitals, Ray E. Brown, superintendent, University of Chicago Clinics, said today.

"In the first place, these medical advances now permit doctors to offer treatment to patients whose condition was classified as hopeless and incurable a few years ago. These patients represented no expense to the prepayment plans because there was no treatment for them," Mr. Brown said.

"If one reviews the average hospital's census today it is likely that a goodly per cent of the patients will be undergoing therapy that was unknown just a few years ago. Much of this new therapy is difficult and of long duration.

"The effort on behalf of these patients consumes an increased number of more costly hospital days that represent a net addition to the pay-out total of the community's prepayment plan," he said.

Increased specialization by physicians has followed the medical progress of recent years, according to Mr. Brown. Doctors have had to restrict their areas of study in order to keep pace with medical developments, he said.

"Specialists are in general the largest users of hospital facilities for the same reason they are specialists. The rate of increase in medical specialists can therefore serve as a sort of index to the rate of increase in the utilization of hospital facilities," Mr. Brown pointed out.

Mr. Brown mentioned that it is difficult to answer the question of whether some patients with prepayment overuse the hospital. "The essential question in this connection is not concerned with whether those with prepayment coverage used more hospital care. If prepayment is serving any social purpose at all it would be expected that its members would have had better financial access to hospital care," he said.

Medical items not covered by prepayment, such as prescription sales, have increased tremendously during the past ten years, and thus offer some evidence that the public is interested in health care "for its own sake and not as a means of beating the prepayment game," he said.

The Kansas Medical Society—1958-1959

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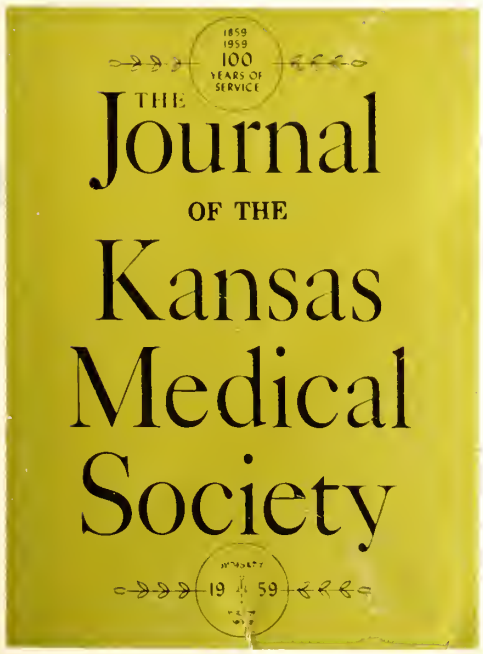

Volume LX · Number V

CENTENNIAL ISSUE

May 1959

THE FIRST CENTURY
of the
KANSAS MEDICAL SOCIETY

This volume has been prepared and is presented by the members of the Editorial Board and the Staff of the Journal as their contribution to the Centennial Celebration of the Society.

THE JOURNAL

of the

KANSAS MEDICAL SOCIETY

Volume LX | MAY 4, 1959 | Number 5

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Centennial Issue

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Preface

All articles which are reproduced, either in full or in part, were first published in the TRANSACTIONS OF THE KANSAS MEDICAL SOCIETY (1859-1900), or the JOURNAL OF THE KANSAS MEDICAL SOCIETY (1901-1959). Notation of the year of original publication is placed at the end of each article. Bibliographies and references to medical literature have been intentionally omitted.

The work of reading these publications and the selection of the portions for reproduction here has been entirely that of the members of the Editorial Board—Drs. David E. Gray, Richard Greer, Dwight Lawson, and John A. Segerson. It would be difficult to estimate the number of hours which were required in this effort.

The preparation of the material for the printer, the work of assembling material, making arrangements for the numerous Board meetings, and many unrecognized but important and obliging duties were done by Miss Pauline Farrell, the Managing Editor, before she left the JOURNAL office.

Photographs are published through the courtesy of the Kansas State Historical Society, the Pennell Collection of the University of Kansas, the Kansas Industrial Development Commission, Kansas Blue Cross-Blue Shield, the Sisters of Charity at Xavier, Kansas, Kansas University School of Medicine, St. Margaret's Hospital at Kansas City, the Menninger Foundation, and the Harvey Advertising Agency.

Wilder's *Annals of Kansas, 1541-1885*, the *Annals of Kansas, 1886-1925*, (published by the Kansas State Historical Society), and Bright's *Kansas, the First Century*, were most helpful in collecting historical data for introductory remarks.

The art work was prepared under the direction of Mr. Perce Harvey, Jr., of the Harvey Advertising Agency. Mr. Ovid H. Bell, of The Ovid Bell Press, Inc., has been most helpful with suggestions and most cooperative in carrying out our wishes.

Many hours of work have gone into the preparation of this volume. It has been interesting, and the time was contributed ungrudgingly by all those concerned. It is our fond hope that it will prove to be interesting and enjoyable to the members of the Society and to other readers.

ORVILLE R. CLARK, *Editor*

PRIVATE LAWS

OF THE

TERRITORY OF KANSAS,

PASSED AT THE FIFTH SESSION

OF THE

LEGISLATIVE ASSEMBLY;

BEGUN AT THE

CITY OF LECOMPTON,

ON THE 1ST MONDAY OF JAN'Y, 1859, AND HELD AND CONCLUDED

AT THE

CITY OF LAWRENCE.

PUBLISHED BY AUTHORITY.

LAWRENCE, K. T.:
HERALD OF FREEDOM STEAM PRESS.
1859.

. MEDARY,
Governor.

CHAPTER LIII.

AN ACT to incorporate the Kansas Medical Society.

enacted by the Governor and Legislative Assembly of Territory of Kansas:

ECTION 1. That Amory Hunting, S. B. Prentiss, J. P. Root, Fuller, C. F. Kobb, J. W. Robinson, J. B. Wheeler, L. C. es, S. C. Harrington, A. Danford, C. E. Miner, J. B. Wood- d, W. Madison, J. H. Phelps, O. Brown, Charles Robinson, F. Holaday, H. J. Canniff, A. J. Richee, M. Baily, J. M. lot, H. H. Beals, J. G. Blunt, T. Linsey, G. W. Beaumont, Leigh, A. Newman, M. Hartmann, Wm. Graham, and their sociates and successors who shall be elected to membership as ereinafter provided, are hereby constituted a body corporate and olitic, by the name of the "Kansas Medical Society," and shall have perpetual succession forever. Said society may have a common seal and change or alter the same at pleasure.

SEC. 2. The members of said society, in their corporate ca-

May elect

acity, may ch : such officers as they shall judge necessary for its government and the management of its affairs: determine the name, power, duty and term of office of each; also, the time and manner of said elections.

Natur

SEC. 3. Said society, by and in their corporate name, may have all the rights, privileges and powers of a natural person in law and equity.

Pow ser

SEC. 4. Said society may elect such persons to membership as they shall judge proper, and shall have power to expel, suspend or disfranchise the same, as members, from all the rights and privileges of the society; but such expulsion, suspension or disfranchisement shall be by a vote of two-thirds of all the members present, at a regular meeting of said society, of which due notice shall have been given.

SEC. 5. Said society shall have full powers to make and enforce by-laws, and impose and collect at law any reasonabl fines, not exceeding fifty dollars, as may be provided in said by laws, for any and every violation or infraction thereof.

SEC. 6. Said society shall issue certificates of membership all its members, under such regulations as its by-laws may p scribe, and may, also, grant licenses to all respectable physicia non-graduates, who shall, on examination, be found qualified the practice of medicine and surgery, or either to practice t branches for which they are found qualified.

SEC. 7. Any three members of said society may org county or auxiliary societies in any county of this Territor said auxiliary societies, when so organized, shall have powers and privileges, in the corporate name which the adopt, that are conferred by this act upon the Kansas Society, and the officers of said auxiliary societies shall orary members of the Kansas Medical Society.

SEC. 8. A meeting of the corporators, or a part ther be held in Lawrence, on February the 10th, A. D. 185 purpose of electing the first officers and completing t zation.

SEC. 9. This act to take effect and be in force fro its passage.

A. LARZALERE,
Speaker of House of Repres
C. W. BABCOCK,
President of the Cou

Approved February 10, 1859.
S. MEDARY,
Governor.

A reproduction of the original publication of the charter of the Kansas Medical Society.

1859
"The Doctor Comes To Kansas!"
1879

2.

3.

1. Eldridge House, Lawrence, site of organizational meeting KMS.
2. Dr. S. B. Prentiss, First President of KMS.
3. St. John's Hospital, Leavenworth. Kansas' first civilian hospital. (1861)

Introduction

The Kansas Medical Society was conceived in a storm, near the end of the years of strife which were to determine whether Kansas was to be a free or a slave state. The Territory of Kansas had come into being in 1854, created by an Act which repudiated the compromise agreement of 1820 providing that no more slave territory was to be opened in that portion of the Louisiana Purchase which was west and north of Missouri. This repudiation paved the way for all the violence and tragedy of the next years, as the inhabitants of the new Territory struggled to determine their future. With the defeat of the Lecompton Constitution in August 1958, the success of the Free-State movement was assured, but the struggle had already won the appellation of "Bloody Kansas" for the Territory.

Carved from the land obtained in the Louisiana Purchase, with the addition of a small part of the former Spanish holdings, the Territory extended from Missouri to the "highest ridge of the Rocky Mountains," and its population consisted of only a few hundred persons. Just how many doctors were included in this group one can only guess, but certainly there were no more than a few. One must have respect, then, for the courage and foresight of the group of twenty-nine physicians who, in 1859, banded together, organized the Kansas Medical Society, and received a charter as such from the Legislative Assembly of the Territory, to ". . . have perpetual succession forever."

Leannec's stethoscope was forty-two years old; Parkinson, Bright, Addison, Hodgkin, and Bell had written even later the classical descriptions of the diseases to be known by their names; anesthesia was an infant of some thirteen years; and there was no concept of "germs" as associated with disease. Such was the medical background at the time of the organization of the Society.

These organizers were a hardy lot and they were not only physicians but active pioneer citizens. One of the names prominent in early Kansas is that of Charles Robinson, who had practiced medicine in Massachusetts, and later had gone to California as a widower in the '49 gold rush (when he first saw the Kaw Valley). He came to the Territory of Kansas in 1854 as the resident agent of the New England Emigrant Aid Company; was among the organizers of both Lawrence and Topeka; was Lawrence's first mayor; was "Territorial Governor" under the Topeka Constitution (which was never accepted); and was the first governor of the State of Kansas. He lived in Lawrence for forty years.

Joseph P. Root had been active in legislative affairs in his home in Connecticut before coming to Wyandotte in 1857. He became the second president of the Society, and was the first Lieutenant Governor of the state. John W. Robinson, of Maine, was the first Secretary of State.

This, then, is the background for the first years of the KMS. Some of the contributions of these years are reproduced, and though they contain an element of humor because of the great changes in medical practice during the ensuing century, we cannot help being impressed by their sincerity, their enthusiasm, and their foresight. (TRANSACTIONS prior to 1867 contained no addresses or papers presented at the meetings.)

Report of the Committee on Obstetrics

C. A. LOGAN, M.D., Leavenworth

Placenta Praevia

All physicians appreciate the depth of meaning attached to this term. Thanks, however, to the onward march of the art, it has been stripped of fully one-half its terrors; and the cases which now necessarily die from this accident are very few compared to the mortality from this cause fifty years, or even less, ago; the number probably being nearly represented by the sum of those who have unfortunately delayed procuring intelligent assistance until too late to save them.

The placenta, as is well known, in these unavoidable hemorrhages is implanted either centrically over the os uteri, or only covers a portion of the opening by a segment of its circle.

The first manifestations of trouble usually begin about the end of the eighth month. These manifestations explain themselves by gushes of blood, more or less profuse. It is at this time, when the physician has ascertained the exact nature of the difficulty, that a very grave question presents itself for solution, this being none other than the consideration of the propriety of terminating gestation by the induction of premature labor. There are many solid arguments in favor of such a course in cases of great seriousness. *Imprimis*, it is a strongly conservative measure, saving the woman, to say the least of it, from the severe drain of frequent and copious hemorrhages; and *secundo*, it can be accomplished with much better results to the mother, and quite as many assurances for the life of the child, as though the case were allowed to progress to the completion of the term.

The writer knows of no better way of determining this question than by a general consideration of all the circumstances in each case. Prominent among these, of course, will be the extent of the cervical implantation. Next to this in importance will be the ability of the woman to sustain a sanguineous loss. Many women representing the extreme of blood deprivation, would sink under a hemorrhage that would not be seriously felt by one more fortunately constituted. Your reporter would strongly recommend the procedure in cases promising much danger.

Unfortunately, we sometimes see cases who have deferred seeking advice until labor is absolutely upon them. In such emergencies the man of science rises to the greatest height above the mere routinest or the ignorant pretender. An arena is here presented in which the charlatan dare not engage in an encounter with the true physician.

The indication in these trying cases is to arrest the hemorrhage until either the progress of the labor removes further danger, or the uterus can be emptied of its contents. The measures to meet this indication are therefore two-fold—those adapted to the first stage of labor, and those to the second.

The tampon was the earliest resort in these cases during the dilatation of the os, and is often used at the present day with the best results. The reporter would present for your inspection, the instruments called Barnes' Uterine Dilators; they act as a tampon by compressing the bleeding vessels, and greatly expediate the dilation of the os. No accoucher should be without them.

The great measure, however, the measure *par excellence*, consists in the partial or complete detachment of the placenta. The partial detachment may be effected in one of two ways: either by the separation of the placenta from its attachments around the os (Barnes' Method), or by separating its entire segment from one or the other of the sides (Cohen's). The latter is the proper procedure in cases where the implantation is complete. The placenta is to be detached entirely from one side, and the Barnes dilator (or in its absence the ordinary colpeurynter) is introduced. The bleeding is thus arrested and the os dilates. When the first stage is completed, the membranes are to be ruptured and the presenting part allowed to descend to take the place of the dilator. If the pains be active and the fœtal relations normal, this will occur, and the patient will come happily through terrible ordeal. If the pains be inefficient, however, they must be stimulated by ergot, or uterine catheterization. Should the pains, notwithstanding these measures, not be sufficient to propel the child with sufficient force to check the hemorrhage, version, or the use of the forceps will be indicated. These need not be dwelt upon here.

But there is another class of cases to which we are sometimes called; those which, having been mismanaged in the earlier stages, or from sudden and overwhelming discharges are upon the brink of exhaustion from the loss of blood. The os is dilated, the pains have ceased, but the bleeding continues. It is in such cases that Simpson's method, as it is called, presents itself as a last hope. Version cannot at once be performed, for fear that the patient will die from the shock of the operation. This unfortunate result occurred in a case managed by your reporter, upon his advent into practice. Simpson's method consists in the detachment of the whole placenta, upon the accomplishment of which the bleeding generally ceases, and the opportunity is gained to prepare the woman for the saving operation by nutrients, stimulants, opiates and exhausted nature's sweet restorer—sleep. (1867)

Essay on the Malarial Miasm Pervading Non-Malarial Disease

CHARLES C. SHOYER, M.D., Leavenworth

Your essayist for the occasion has undertaken to give the result of his past year's experience in this city. Should he fail to interest you, he at least merits your approbation for the effort to please. We are all of us supposed to be acquainted with the contents of our text-books and the current literature of the profession, as disseminated in our medical journals. The caption of my essay presupposes that I am about to open a new source of exploration, but I am happy to dispel such illusions and assure you that what I am about to communicate is well known to all of you, though not contained in text-books or journals. It has doubtless occurred to all of you, in prescribing, to notice irregularities in the normal course of diseases, this I take it is common to all countries, but in Leavenworth there is a tendency for diseases to merge into a periodical form; I do not wish to be understood as denying that it may not prevail in other parts of the State, for I believe it does; a better way of expressing myself would be to say that periodicity complicates non-malarial diseases. You find it in treating pneumonia, pertussis, bronchitis, diarrhœa, dysentery, dentition and the eruptive fevers. If you perform a capital operation, as an amputation of the thigh performed by a surgeon of this city, you are apt to encounter a sympathetic fever that will only yield to quinine pushed to cinchonism; the same holds true of minor operations; for in a case of hemorrhoids that I operated on, assisted by Dr. Carpenter, pains of such intensity came on in the abdomen, after the operation, that it suggested peritonitis, especially as there was vomiting, extreme tenderness to pressure, constipation, etc.; but there was wanting the characteristic pulse, and peritonitis, except in the puerperal state, is a rare disease. Watching closely, Dr. C. and myself noticed a periodical tendency, and quinine cured the alarming symptoms. You treat cephalalgia, neuralgia, myalgia, and even rheumatism better and more speedily if you combine with or administer simultaneously, the great specific and your other remedies. I have in mind a case that I saw in consultation with three other physicians, a case of great interest and danger—chronic dysentery—which resisted in turn all the remedies exhibited, but upon adding quinia to our treatment the case at once improved and recovered in a very short time. This case was so dangerous as to be considered hopeless; a suggestion was made that there might lurk a malarial basis, but the closest scrutiny failed to unveil it and it was only proven to exist by the employment of the remedy.

Even in cervicitis I have found quinine indispensible to a perfect cure; I do not wish to be understood as meaning all cases. A case of odontalgia, in a pregnant female, resisted all the remedies employed excepting quinine and it was employed last. Two cases of hysteria showed a periodical tendency and were cured by it. I saw a case of insomnia with pains in the loins and extremities, no thirst or signs of fever; the fact of the pains and the patient falling asleep about 5 A.M., suggested a probability of periodicity, which treatment proved to be correct. I am at present treating a case of chronic albuminuria in which there occurs copious hypercatharsis every night at 1:30 A.M. I ordered quinine in sufficient doses and the hypercatharsis ceased as soon as quininism was induced; there was no action from the bowels at other times excepting ordinary stools: A friend has informed me that this periodical tendency of disease is so common in his practice that he now gives quinine in almost all diseases, and pushes it to its full effects, and is rewarded with success in many cases, where formerly he met with disappointments innumerable.

To illustrate the object of this paper I will take a case to typify—say a case of pneumonia; the patient will tell you he is worse in the forenoon, has great thirst, feels nauseated and chilly, has pain in his legs, etc.; his friends will inform you voluntarily that the patient has bad spells, is delirious, coughs more, is exceedingly restless, etc., etc.; your own observations on visiting at different hours of the day confirm the above, and lastly, the treatment proves that a malarial taint was underlying the principal disease. This malaria does not especially render the pneumonia, or any other disease it may complicate, more dangerous, it simply seems to protract it. I have taken two cases of pneumonia complicated as above and treated them alike, with the exception of withholding quinine from one; the case getting quinine convalesced rapidly as in ordinary uncomplicated pneumonia, the other deepened into a continued form of fever, the cough grew worse, delirium was greater, skin hotter and dryer, respiration more frequent and labored, thirst extreme, expectoration scanty and very viscid and but slightly rusty, pain in chest far more severe, pulse ranging from 120 to 130; these grave symptoms all yield promptly, in

a short time, as soon as the system was brought under quinine. There are some points in the treatment that are of importance. In continuing your medication the prolonged use of quinine deranges some of the organs and functions; for instance, in two cases of dysuria complicating intermittent fever, the dysuria complicating intermittent fever, the dysuria yielded at once on discontinuing it. In two cases of remittent fever its prolonged use occasioned some gastroenteric trouble, such as abdominal pain, furred tongue, nausea and vomiting; it also disturbs the nervous system, causing cephalalgia, dilated pupil and considerable agitation. These symptoms were not due to the fever but clearly resulted from the quinine.

Some of the most observable symptoms, as a result of the long continued use of quinine in large doses, say five grains daily, after having once pushed it to its full physiological effects, are a flushed face, dilated pupils, pain in the stomach and abdomen, thirst, etc., and a marked feature is the protracted convalescence occasioned by it. I have sometimes continued quinine for these very symptoms, and only discovered my error on discontinuing it and pursuing the expectant treatment. It may be asked how I will prevent these pathological effects of quinine. I reply that this is not always possible, but I think hydrochlorate of ammonia, which I am in the habit lately of giving after discontinuing the quinine, has been productive of some good. I think that the tongue cleans more rapidly, and the unpleasant effects of the quinine disappear more promptly under its use than when the case is left to nature. It is also well known as an anti-periodic and of itself capable of curing periodical fevers. As to the dose of quinine I consider it a very minor import; my plan is to give three grains every two hours till there is a ringing in the ears; if I wish a more speedy action I give six or nine grains at once and then three grains every two hours, or hourly, till I obtain its effects; afterwards a daily dose of two or four grains. I supposed at one time that malarial taint was not prevalent in winter, more extended experience has convinced me to the contrary, and I find that it exists during the entire year, only more violent during spring and autumn. I have observed it in summer complicating cholera infantum, and in a case that was nearly abandoned as hopeless, having in turn baffled all the usual remedies suggested by a consultation of physicians, quinine in two grain doses, per enema, for a child of sixteen months, repeated every eight hours, performed a cure. I saw in February last a lady aged 45 years, who presented many of the features due to tuberculosis; she had lost considerable flesh, had a poor appetite, bad cough with copious expectoration; father died of this disease; had been pronounced consumptive seven years before, had pain in the left chest, had hectic flush on cheeks every afternoon, pulse 90, respiration 33 per minute, jerking inspiration; but this was not tuberculosis; percussion sound clear on both sides; auscultation showed that air permeated every portion of both lungs. Now I did this; I compromised the matter; I ordered quinine pushed to its anti-periodic effects and told her to take cod-liver oil and whiskey; in three days she was well—yes, well. She kept the quinine down and vomited the oil and whiskey. I have thus hurriedly run over a subject that merits greater attention than I can bestow on it and present it in this unfinished manner; it was intended for our local medical society, where the members read essays at our semi-monthly meetings. I must apologize for not reading one more worthy the occasion, and can only hope such feeble efforts will stimulate others to produce essays fitting our young society. (1867)

Dr. Root offered the following preamble and resolution which were adopted:

WHEREAS, The medical profession has ostensibly in charge the lives and health of the people, and whenever, from any cause, pain and disease, or death, are present or apparently approaching, medical aid, consolation and advice are sought by mankind, thereby recognizing the physician as the true index and source of that knowledge and wisdom neccessary to alleviate, and, as far as possible, to prevent the diseases, pains and sufferings, and death of mankind, therefore—

Resolved, That it is the high and solemn duty of each medical practitioner to instruct and protect humanity publicly and privately; and especially to become, before the world, perfect patterns of physical and moral purity, and thus by combining precept and example, cause the human race to seek a higher sphere of usefulness and happiness. (1867)

Report of a Case of Chronic Diarrhoea to the Kansas State Medical Society

J. W. BROCK, M.D., Leavenworth

You are all familiar with the subject of my essay, both theoretically and practically, as all of you have had the disease in its acute or chronic form. If you never have, you should have, if for no other purpose than to test the calibre of your guts—I mean diarrhœa.

I propose to say something of the treatment of a case of chronic diarrhœa that I have had under my charge for some time. I commenced this case last December, and only succeeded in imparting the glad news to my patient that he was well, about two weeks since, and I only did so then, because I thought that spring and warm weather had really come, and I could not require any more fuel for my stove, as I burn coal, and my patient deals in that article, so you can readily perceive my motive in thus prolonging the case.

I learned from my patient that he contracted this disease in the fall of 1864, while in the army. He had all the symptoms of the disease, which it is unnecessary to give in detail. He had, previous to the time I took charge of the case, several attacks of hemorrhage of the bowels, which came near terminating fatally. He had an average of eight operations of the bowels in twenty-four hours, which were attended with excruciating pains and no pleasure. The bowels were badly swollen, appetite poor, digestion imperfect; never slept more than four or five hours during the twenty-four, and that was not attended with the amount of refreshment that an individual with a clear conscience and sound stomach and bowels usually anticipates. I asked numerous questions—many of them foreign to the case. This I had to do to impress upon his mind the importance and dignity of my profession, and to make him conscious that there really was something in the healing art. He had been treated by other physicians, some of whom I knew were as likely to accomplish a cure as myself, but he said that they had failed—whether attributable to the doctor or patient I am unable to say. He invariably was aroused in the morning at three o'clock (this, he said, was a sure thing), and from that until daylight, he suffered intense pain. I thought this had the appearance of periodicity, so there I stuck a pin (any one else would have thought the same). I had learned from others—the source from which I derived the bulk of my knowledge—that there was virtue in an exclusive milk diet in cases of this kind. I therefore put him upon a milk diet. I tried this as long as I thought prudent, knowing that Leavenworth boasts of other physicians none the less known to fame than myself, I thought it advisable to medicate some. I will give you a list of remedies used, not stopping to give you the number of grains and scruples, drachms and ounces of each medicine, as you are all familiar with the dose and effect of each remedy.

I gave opium, tannin, bismuth, all the Ferruginous preparations, many of which are said to contain active emmenagogue properties, mercury in various forms, nuxvomica and its salts, quinine, castor oil, turpentine, assafœtida and bourbon whisky. Of the latter I had him keep a liberal supply, because it is a remedy that few persons refuse to take—said to be good to aid digestion.

Of the local applications, I used mustard, mush, hops, cantharides and tincture iodine. I attribute the cure to the following remedies: Argenti nitratis, gr. ½; ext. opii, gr. ½; quinine, gr. 5; to be given three times a day; to take half an ounce bourbon whisky after each meal to aid digestion. When the bowels are uncomfortably distended, take assofœtida. Locally, I applied tincture of iodine to the abdomen at night, and repeated as I thought necessary. Allowed him beefsteak rare, mutton chops and rye bread. I think that his stomach and bowels became thoroughly disgusted with the quantity and quality of medicine administered and fearing that I had a reserve in store for them that would out *nasty* assofœtida, they concluded to yield and act like other peoples' guts in the future. Had they not done so, I would have brought forward my reserve, as I was confident the man would soon apply to some one else, perhaps, and who might have cured him with something that I have not yet seen or read of in the dispensatory, and thereby pluck laurels from my professional brow which justly belonged to me. But luckily for the man, and his stomach and bowels, they yielded. Had they not, I had in store for them one more dose, which will cure or produce a case of diarrhœa, and that was a heroic dose of impeachment. (1868)

Resolution Relating to Medical Education

The secretary read a communication from a committee of the American Medical Association, enclosing resolutions of the association on medical education, and requesting the action of the society on them.

Dr. Logan offered, for adoption by the society, the following preamble and resolutions, which embrace the resolutions of the National Association, viz:

WHEREAS, The subject of medical reform, which has been so persistently agitated by the profession for the past twenty years, has been barren of any practical good results; because partly of the great diversity of opinion as to *how* and upon what terms the reform could be instituted; and

WHEREAS, In the present influx of population to the State, we are being flooded with medical adventurers of all hues and pretensions, and the time seems most propitious for making a decided step toward the suppression of an evil, which only grows stronger and more deeply-rooted with age; and believing it impossible to digest a plan, which shall be perfect in detail, save through the corrective results of a long and ripe experience; therefore,

Be it Resolved by the Kansas State Medical Society, That this society does hereby accept as a basis for action, the report of the committee *On Various Communications and Propositions from Medical Societies, etc.,* made at the last meeting of the American Medical Association (May 1869), and does hereby adopt in part and whole the accompanying resolutions, which report and resolutions are in the terms following, to-wit:

Report of the Committee on Various Propositions and Communications from Medical Societies, etc.

After a fair examination of the various propositions concerning medical education, medical legislation, and ethical regulations for medical colleges, referred to your committee, we respectfully submit the following report:

WHEREAS, The history of medical legislation in the various States of this Union, clearly shows that no reliance can be placed on either the uniformity or the permanency of any laws relating to the practice of medicine; and

WHEREAS, The results of all the efforts made during the last twenty-five years, to elevate the standard of medical education, through concert of action among the numerous medical colleges of this country, have proved with equal clearness that such concert of action, in an efficient manner, is unattainable; therefore, be it

Resolved, That whatever is done to establish and maintain a just and fair standard of medical education throughout our whole country, must be done by the profession itself, through its own voluntary organizations, in the same manner that it now establishes and enforces its code of ethics. The profession is as competent to declare, through its representatives to the national, State and local societies, what shall be the standard of attainments for those to be recognized and admitted into its ranks, and to establish the boards or agencies by which compliance with such standard shall be ascertained, as it is to declare what shall be the ethical rules governing the conduct of those already admitted.

Resolved, That this association earnestly requests each State Medical Society to appoint annually one or more Boards of Examiners, composed of five thoroughly competent members, whose duty it shall be to meet at suitable times and places, for the examination of all persons, whether graduates of colleges or not, who propose to enter upon the practice of medicine in their respective States, except such as have been previously examined and licensed by a similar Board in some other State.

Resolved, That each State Medical Society be requested to make such regulations concerning the pay of the Boards of Examiners, and the fee to be charged for a license to practice, that the former shall in no case depend on the amount received from the latter.

Resolved, That each State Medical Society be requested to require its Examining Board or Boards to exact of every applicant for examination, adequate proof that he has a proper general education, is twenty-one years of age, and has pursued the study of medicine three full years, one-half of which time shall have been in some regularly organized medical college, whose curriculum embraces adequate facilities for didactic, demonstrative and hospital clinical instruction.

Resolved, That each State Medical Society be requested to act on the foregoing propositions at the next regular annual meeting after the reception of copies of the same, and if approved and adopted by the State Medical Societies of two-thirds of the States, this association shall deny representatives from all organizations who longer refuse to comply with the same, and shall recommend the State societies to do the same, and all persons who, after that date, seek to enter upon the practice of medicine without first receiving a license from State Board of

Examiners, shall be treated ethically as irregular practitioners.

Resolved, That in adopting the foregoing resolutions, by which it is proposed to treat the medical college diploma the same as the diploma of any literary college, this association is actuated by no desire to injure the medical schools of our country. On the contrary, by the adoption of the fourth resolution at the same time that the mere college diploma is practically nullified, it is the desire, and confident expectation, that those institutions will be greatly benefited; because they will be forced to rival each other in the extent and efficiency of their courses of instruction, instead of the number of diplomas which they can annually distribute.

All of which is respectfully submitted.

N. S. Davis,
Paul F. Eve,
E. S. Gaillard,
E. Lee Jones,
J. K. Bartlett.
(1870)

Report of Committee on Surgery

J. W. BROCK, M.D., Leavenworth

I present the subject of cancers for your consideration. It comes within the domain of surgery. Since our last meeting I have had an opportunity of examining some cases of cancer, both on the living subject and cadavera.

What is the origin of cancer? Does the disease consist solely in a local change of structure, or is it the local determination of a general morbid condition of the blood, or are the blood and the tissue equally interested in its formation? It is not surprising that surgeons have come to regard cancer from the first as a constitutional or blood disease. Indeed it is no easy matter to account for all we observe in cancer without adopting some such view. On the other hand, there are many facts which oppose themselves to it, and there are other modes of accounting for some of these characters which most strongly support it. It may seem that, practically, the question is not worth discussing.

If cancer be a constitutional disease, we must strive to find some corrective to the constitutional taint. And we should try in that case to determine whether the local disease is the result of some error in the organizing or nutrient function of the tissues, or whether it is the actual deposit of some poison previously existing in the blood. Then we might have reasonable hope of being able to do what as yet has proved beyond our reach—to cure or even modify cancer by general treatment. But if cancer be, at any period of its existence, a purely local disease, we should hope that by earlier and more complete removal, better and more generally permanent results may be obtainable than we can at present boast of. Virchow and many German pathologists maintain that cancer is not to be regarded as a blood disease, although a constitutional tendency may exist. They claim that cancer and some allied diseases partake more of the nature of parasitic disease than of the results of previous blood poison.

I cannot suppose that there is any material in the body which must work itself out of it, and which selects this situation, or that, indiscriminately; or, perhaps, makes use of one in preference to another from finding a tissue prepared for its reception. I cannot suppose that there are various kinds of this morbid material—one breaking out as scirrhus, another as epithelioma, etc. If the cancer poison be of one kind only, we should surely find it more frequently appearing in the same subject, at one time as encephaloid, at another as scirrhus, at another as epithelioma, or some other form of malignant disease. Yet this is seldom the case, though it does occur.

Let us consider some of those special characters which have led to so firm a belief in the blood origin of the cancer. Perhaps that which seems to be the most conclusive evidence to the large majority of those who hold this view is the almost constant recurrence of the disease after removal. Entire and permanent immunity does occur, but it is rare. In such cases it would be said, first, that the blood poison having having worn itself out, or been eliminated by the formation of a tumor, no further development took place when the local tumor was removed; or, second, that two conditions were necessary for the formation of cancer—one, the blood-poison, the other a fit state of tissue in which it might manifest itself; and that a tumor having been removed, there remained no fit nidus for its reproduction.

These cases of permanent cure after operation are, we may admit, exceptional. The more common event is that, after removal of a tumor, in favorable cases there is immunity for a longer or shorter period—some months or some years. Is the blood diseased during this time? Are the other tissues free from

disease? It is most important here to consider the mode of recurrence of the disease.

It is a recognized fact that cancer rarely returns either in an organ corresponding to its original seat, or indeed in any organ which is the usual seat of the primary disease.

A cancer in the breast rarely returns in the opposite breast. An operation may so change the tissue of the part operated on as to make it a fitting seat of future disease. But this will only apply to those cases in which the return is in or around the cicatrix, not to those where distant lymphatic, or lungs, or other internal organs are affected, the cicatrix remaining sound. And still the difficulty of accounting for the fact that, with a cancerous state of blood existing for a length of time, no recurrence takes place in the organs most prone to the disease would remain the same.

The influence of local condition must be at least more powerful than that of blood. So much is said and written about cancerous cachexia, that cachexia comes to be regarded as a necessary associate of cancer. Hence we too frequently rely upon it as a means of diagnosis, and conceive that a disease cannot be cancerous because the patient's health is good, whereas, in reality, cancer, especially in early and middle life, fastens itself often upon those who are well nourished and florid, who seem the most healthy and so give promise of life.

Tumors are discovered and allowed to grow till too late for removal, the patient, or perhaps the medical attendant, considering that there was nothing of consequence in them because there was no appearance of cancerous cachexia. In reality, however, the fact that a tumor is developed in the breast of a person in otherwise sound health, and over thirty: a tumor painless, and only discovered when already of some size, is enough to justify a more than suspicion that it is a cancer. If cancer should ever be removed by operation, I suppose few will deny that the sooner it is done the better. But what chances of successful removal are daily thrown away owing to the presence of those very conditions which should most surely excite suspicion in the mind of the surgeon. It may be asked what is practically gained supposing these views are established? Little or nothing, I admit, with our present knowledge, except this, that we should know the direction in which we should work. In the first place, it is clear that if removal be the practice adopted—and I believe that in all fair cases it is the proper one—the earlier the operation is done the better. This I consider a positive rule. It is true that very early operations are very often very unsuccessful, and late ones very successful. But the tumor will often tell us why. When you remove a tumor that is highly vascular and juicy, and the tissue around containing minute dark specks of cancer, such tumors would be very likely to return. The most successful results follow if the parts are widely removed.

I will report a few cases:

Case 1.—A patient of Dr. Thomas, aged about 60 years—cancer of the pyloric orifice of the stomach. I saw him before death and learned something of the history of the case. Assisted at the *post mortem.* The most striking peculiarity of this case was the absence of acute, lancinating pain. The diagnosis was correct. We suspected atrophy of the liver, but it did not present any appearance of atrophy.

Case 2.—Treated by Dr. Stormont, of Topeka, and other physicians. My impression is that Dr. Stormont diagnosed it cancer; others had arrived at a different conclusion. Dr. Thomas treated him a short time before his death. This was rather an obscure case. He presented some of the symptoms of ulceration of the stomach, with splenitis and dislocation of the latter organ. *Post mortem* showed cancer of the stomach.

Case 3.—A farmer about 45 years of age. Some twenty years before I saw him he had received an injury of the face, the extent of which I have forgotten. He recovered with the exception of a discharge from the right nostril. This discharge came from the antrum, in my opinion. At intervals he had severe neuralgic pains. About one year ago I saw him at Dr. Weaver's office in consultation. He had been suffering agonizing pain in the right side of the face and head for some time. After suffering for some time a swelling made its appearance immediately under the right eye. Pus was suspected and an incision was made into the swelling. Dr. Weaver and myself probed the parts and examined them carefully, finding some softened bone, which gave the impression of caries. From some of the symptoms present, we entertained doubts as to its benignant character. In about two weeks we were called on to operate, as we told the patient at the time that an operation would have to be performed. Dr. Weaver being engaged, Dr. M. S. Thomas, and Dr. Wood, the family physician, saw the case with me. During this time there had been a rapid growth of nodular tissue of the right side of the face, extending downward to the inferior maxillary. The case was no longer an obscure one, as it now presented every indication of cancer. I operated by making an incision extending from the inner angle of the eye to the middle of the ear of the right side. Another incision extending from the first named point to the angle of the mouth, turning back the flap and removing all the cancerous tissue and diseased bone that could be detected. The patient improved and did well for a month, but in a short time the disease returned with renewed violence, and soon destroyed his life.

Case 4.—Two negroes became pugilistic, one struck the other a heavy blow with a weight on the upper

lip, directly under his nose, which of necessity came in contact with his lip. The lip was mashed into a black jelly; his front teeth were caved in. He replaced his teeth, and was able to masticate with them in a short time, although they remained loose to some extent. This was three years ago. The teeth gave him occasional pain, and in time there was a fungus growth on the gums. I saw the patient first, about September of last year; examined the parts, and was not entirely satisfied as to the nature of the difficulty. I did nothing at the time; was informed by the patient that some portions of the fungus growth had been removed by another physician. I explained to him about the nature of the difficulty and what the operation would be. He left, and I saw him no more for two months. When next I saw him, I felt confident that it was a cancer, involving the injured parts and also the superior maxillary and bones of the nose. The mouth was rapidly filling up with fungus. He consented to an operation. Drs. M. S. Thomas and Van Duyn assisted. I removed six front teeth and then made a section of the superior maxillary. Here we rested.

After carefully surveying the ground, we concluded not to interfere further, as another operation would necessitate the removal of the whole of the superior maxillary, nasal bones, and, in all probability, his eyes—then with no prospect of a permanent cure. We used no chloroform. In a very short time the mouth began to fill again with the nodular tissue, a part of which I again removed. It is surprising how very rapidly it grows. I consider this case one of simple injury—of a local character, one that would have insured success by an early operation. What gave rise to cancer in this case, I am sure I can't tell you. I know there was a constant source of irritation; but why not necrosis or caries instead of cancer? I examined the juices of some of these cases, and others examined them—under the microscope—but with no satisfactory results. (1872)

Family of Seven Persons Poisoned by Arsenic

JOHN W. PARSONS, M.D.

Old P. quarreled with his family, procured three drachms of arsenic, put it into a can of milk and left the country. A few hours afterward the family consumed the milk for dinner, and in two hours they were all very ill, all but two were vomiting. All complained of burning pain in the throat and stomach, there was dryness and tightness in the throat, cramps, clammy sweats, great weakness, intense headache, some had diarrhœa with griping pains, some were in bed and were sure they were about to die. I immediately made a copious solution of the sulphate of zinc and gave it very freely until all were freely vomiting. I then gave the subcarbonate of iron very freely, mixed with water as thick as cream, and as fast as it was vomited would repeat the zinc followed with the iron.

Towards morning some of them were asleep and by daylight all were convalescent. I believe the subcarbonate to be as good as the hydrated peroxide. (1867)

Report of Committee on Climatology

TIFFIN SINKS, M.D., Leavenworth

It has been said that the best physician is "he who can bring to bear on his cases the greatest number of relations." It is therefore incumbent upon us to acquaint ourselves with all fact and conditions which indirectly, as well as directly, influence health, or are productive of disease, for even when so informed, the difficulties in diagnosis are only less abundant than those attending a rational therapeusis.

. . . . .

Climate originally signified a slope or zone; the present definition, however, is much broader and more comprehensive, meaning "the condition of a place in relation to the various phenomena of the atmosphere, as temperature, moisture, wind, etc., especially as they effect animal life or man," being variously designated as hot, cold, temperate, humid, dry, insular, continental, maritime, uniform or variable, as any one or more of these conditions predominate.

Climate depends primarily upon the relative position and motions of the earth, with reference to the sun; and, secondly, upon the vertical configuration of the surface of the earth, and the relations of land and water to each other.

. . . . .

The latitude, altitude, temperature, direction and force of the winds, barometric pressure, and hygrometric condition of the atmosphere may be the same in two places, and yet the climate, in a medical sense, essentially different. The difference may depend upon drainage, or the condition of the soil, or both, so that in determining the climatic influence on health of any locality all the elements of the problem should be considered. The latter conditions, however, being largely within the control of man, and susceptible of modification, or even radical change by intelligent procedure, need not disturb our calculations.

. . . . .

The diseases most likely to be cured or alleviated by the benign influence of change of climate, are the following: Pulmonary consumption, chronic bronchitis, asthma, the various forms of dyspepsia, chronic gout and rheumatism, obstinate neuralgia, and the general class formerly mentioned as having been bed-down to chronic invalidism.

There is a class of diseases under the general head of malarial which find their greatest expression in the tropics, gradually shading off toward the poles. The changing of the seasons which transfer a tropical temperature in the summer to the forty-second parallel north, and in winter a cold zone as far south as the Gulf of Mexico, exercised a marked effect upon diseases of this class in particular. So that, when we speak of the climate of any locality in reference to its effect upon particular diseases, the particular period of the year must also be taken into account. It would hardly be considered a judicious proceeding to advise a person whose condition required a relaxing climate to spend the summer in New Orleans and risk the hazards of succumbing to yellow fever. From the Atlantic coast westward to the Rocky mountains, the isothermal lines pretty nearly accord with those of latitude, and the amount of rain fall is substantially the same with the exception that from the Mississippi River westward, there is a gradual decrease in quantity. The differences, therefore, in the medical climatology of those districts in the United States lying within the same parallels of latitude are of a local nature, being chiefly dependent upon the character of the soil and the natural drainage. Where the soil is rich and the country but poorly drained, giving rise to a luxuriant vegetation, malarial diseases are peculiarly abundant and of a severe type.

The transition from the general to the special brings us naturally to the consideration of the climatology of our own State, a brief outline of which is all that the limits of this article will allow.

The State of Kansas lies between 37° and 40° north latitude, and between 94° 30 minutes and 102° west longitude. The eastern border is elevated 900 feet above the level of the sea, and gradually ascends toward the west at the rate of about three feet per mile. The surface is that of gently undulating prairie, interspersed with numerous streams, the margins of which are skirted by timber. The general direction of the principal streams is from west to east. There is an entire absence of lakes, swamps, and marshes, and the streams seldom overflow the alluvial bottoms along their course. The natural drainage of the State is most excellent, the descent of the beds of the streams being sufficiently great to produce rapid currents.

The measure of moisture precipitated in rain and snow for the year averages 31 inches at the eastern

border of the State, and 24 inches at the western border, gradually decreasing toward the west.

Observations at Fort Leavenworth for 35 years, give the following averages for the seasons: Spring months, 7½ inches, summer, 13; autumn, 7½, and winter 3½ inches. The precipitation of rain for the month of March, shows a small increase over that for either of the winter months. The quantities are doubled in April and again doubled in May, the mean maximum occurring in June and the minimum in January. The geographical position of the State, its proximity to the plains, its exposure to the cold currents from the Rocky mountains and the warm ones from the Gulf of Mexico, the conflict of these with the great normal west wind of the temperate latitudes, all combine to produce confusion from which it is almost impossible to eliminate anything that may be called general. However, the prevailing winds in the summer are from the southwest, south, and southeast; in the winter from the northwest, north and northeast, in the order of frequency as enumerated. During the spring and autumn these points are about equally represented. Direct east or west winds, except of a fitful character, are quite infrequent. The average force of the winds is greater than that for the Central States east of the Mississippi, and they are also more constant. The annual mean temperature at Leavenworth is 52°, at St. Louis 54°, at Cincinnati 53°, at Pittsburgh 51°. There is also quite as close a resemblance in the monthly mean temperature at these points, showing, as before remarked, that the isothermal lines pretty closely correspond with the lines of latitude.

From the foregoing the natural inference would be that the prevailing diseases in Kansas were similar to those of the States lying east of us, and between the same parallels of latitude. In a general sense this is true, but the general drainage of the country, the porosity of the soil, the purity of the atmosphere, and the fact that the winters are quite dry in comparison, all contribute to reduce in amount and virulence all the various malarial disorders, and in the winter particularly, inflammatory diseases, notable among which may be mentioned pneumonia and rheumatism. Adopting the nomenclature heretofore mentioned, the climate of Kansas would, we think, be very appropriately termed a bracing one, and without exaggeration, a very healthy one for this latitude.

The foregoing is merely a brief review of the salient points of the subject under consideration, but it is perhaps as full as would be advisable under the circumstances. While the earth continues to revolve, the sun to shine, the winds to blow, the rains to descend, and the seasons to come and go in their regular succession, we must have ever present with us the instruments for our own destruction; much may be done, however, to blunt their keen edges, and to ward them from our vitals. Climate we cannot hope to change, but it is within the compass of human ability to obtain a knowledge of its varieties, of the diseases peculiar to each, and also to modify, to a certain degree, the baleful influence of some varieties as well as to avail itself of the benign influences of others. (1872)

Dr. Thomas offered the following resolution, which after some debate, was adopted:

WHEREAS, We recognize the American Medical Association as the representative wisdom of our profession, and acknowledge our amenability to its decrees; and as it has declared in unequivocal language that certain acts on the part of members of the profession are irregular, and has declared its purpose in the following resolution offered by Dr. Collins, of Massachusetts, and adopted by the association:

"That the charge for medical examination for life insurances should not be less than five dollars."

Resolved, That the provisions of the resolution, as adopted, are binding on each member of this society. (1871)

Variola

H. K. KENNEDY, M.D., Topeka

Variola, than which no more fearful disease has preyed upon the human family in the past year, has mocked our progress in medicine, and humiliated us as a profession, with the fact that the per cent of deaths from it has been fully as great as it was any time in the last century.

As if to avenge itself for the wrong done it by Jenner, when he taught that vaccination is a prophylactic for small-pox—it has scourged all our cities, and spared but few of our towns. From Philadelphia the frightful intelligence comes that three thousand deaths in the past year, in that city, were from small-pox alone. In the coal regions of Pennsylvania this disease is sweeping the miners away without let or hinderance. Boston, Philadelphia, Baltimore, Richmond, Charleston, Nashville, St. Louis, Chicago, and scores of towns of less importance, are all helping to swell the grand total of deaths from this most horrible of all diseases, till we must bow our heads and acknowledge, in shame, that our profession attains no better results to-day than did the profession a hundred years ago.

Paint, color, or avoid the truth as we may, the humiliating fact will remain the same, that in the past year, of all cases of small-pox in the United States, at least twenty-five per cent have died.

I propose to give a brief sketch of this epidemic as it appeared in Shawnee County—its introduction and history.

In November S. H., who lived in Wabaunsee County, returned home from St. Louis; the same week was taken sick, for which he "doctored" himself for several days, and finding himself no better, he then sent for a physician, who diagnosed the case bilious fever. Before the physician made his third visit the patient died—died upon the eleventh day of his illness. Ten days after the death of H., his nurse R. was taken with a severe headache, pain in back and fever. As he lived twelve or fourteen miles from a physician, he made to Silver Lake, a village on the Kansas Pacific Railroad, twelve miles west of Topeka, and took a room with a gentleman who combines the selling of goods with the practice of medicine, and his residence is over his store. The day after R. arrived at Silver Lake, the eruption of small-pox made its appearance, where he died upon the twelfth day of his illness. The same week of his death, the merchant's clerk took the disease, and was removed to a pest house, established by the county. Eleven days after the death of R., T., who assisted in burying him, was attacked, and died on the thirteenth day. Of three hired men at T.'s place, all were attacked, one of whom died on the eleventh day. Another man, W., who was in Silver Lake the day R. was buried, purchased a suit of clothes in the store, but after imbibing freely of whisky at the various places in the village, returned home without the clothes. Twelve days afterwards he was attacked with small-pox, and died upon the thirteenth day of his illness. The family with whom he lived (consisting of seven members) all escaped, notwithstanding the house in which they lived contained but one room.

Mr. O., who purchased an overcoat at *the* store in Silver Lake, carried his little girl to school in it—she took the disease but recovered. Her sister was next attacked, and died upon the tenth day of her illness. G., who assisted in burying Mr. O.'s daughter, took the disease, and died upon the thirteenth day of the attack. A negro man purchased some articles in Silver Lake; returned to Mr. E.'s, where he was living; ten days afterwards he was taken sick; remained at Mr. E.'s till the tell-tale eruption of small-pox peeped through the skin, covering the forehead, when he was *immediately* removed to the pest-house, and died upon the eleventh day of his illness. Mr. E.'s family, eight members, all took the disease in different degrees, from the mildest varioloid to the most malignant confluent form, all recovered. In Mr. C.'s there were four children and a nephew, all adults, all of whom took the disease; the nephew and three children died, all deaths occurring before the fourteenth day. Mr. W.'s family, consisting of himself, wife and five children, took the disease; the wife and four children died; the wife and two children had no eruption to indicate the disease; for some cause there seemed to be a want of vitality in these cases which kept the disease from fully developing itself. As their home was on the bank of a large pond, known as the Lake, I attributed this want of vitality to malarial poison in the system. Whatever the cause may have been, the fact remains the same, and cannot be controverted; that Mrs. W. and her two children died of varioloid, although the characteristic eruption of that disease was not perceptible, either to the sight or touch, and there can be no doubt that this wide-spread epidemic in the county, originated from the case of H., who died without small-pox eruption ever manifesting itself; yet that he had small-pox is proved beyond a doubt, by the fact that R. who nursed him took the disease, although he had not been off the farm upon which he lived for over one month. Another fact: B., who

shaved A. and prepared him for the grave, was attacked with the disease five weeks afterwards; B. died upon the thirteenth day of his attack. Here we have another anomaly in this—an attack five weeks after exposure. You say this is contrary to your preconceived ideas of small-pox. I cannot help that; am only reporting facts as they occurred in my practice in the past winter; do not pretend to explain the causes; leave that for the curious in these matters. The disease kept spreading east till it made its appearance in Topeka, in the family of Mrs. P. Two children had the disease, one of whom died. An elder sister, out at service, after visiting her home, spent the evening at T.'s; the husband took the disease, and died on the thirteenth day. The wife and six children, all were attacked, none of whom died. The son of the family from whom Mrs. P.'s girl took the disease, died upon the thirteenth day. The father was next attacked; had a slow recovery; the mother, who was exposed, escaped; had been revaccinated a few weeks before. Through the carelessness of a nurse, the disease spread into many families. In the city pest-house, of which I had medical charge, there were in all thirty-six cases, with a loss of four, two of whom died within thirty hours after coming under my care. The total number of cases in the county was one hundred and five, of whom twenty-six died. A confluent case—Mrs. B. had the disease the second time, having had it twenty years before. Of the one hundred and five cases, sixty-five had been vaccinated—only twenty-three revaccinated, and forty cases not vaccinated at all. Of the twenty-six cases proving fatal, only five were ever vaccinated, and three out of the five revaccinated.

One man, twenty days after vaccination, which worked well, passed through the various stages to maturity, took the small-pox in the most malignant form, of which he died upon the fifteenth day of his illness. A second case was attacked forty days after a successful vaccination, with malignant confluent small-pox—recovered. I report the two above cases, not for the purpose of weakening vaccination, but report them because they are facts, exceptions to the well established, general rule, that vaccination is a preventive of small-pox. No fact is better established than there are persons who are so susceptible to the poison of small-pox, that one attack of the disease is no immunity against a second, or even a third attack. We certainly have no right to expect vaccination to be a better preventive of small-pox than an attack of the disease itself. I cannot account for this idiosyncrasy in certain individuals any more than we can tell why vaccine virus should remain dormant in the arm for several weeks, then become active, and pass through the various stages of a successful vaccination. Dr. Wyman reported two such cases to the Shawnee County Medical Society. In one case the virus had remained nearly six weeks, then became active; in the other four weeks elapsed from the insertion of the virus till it began to work.

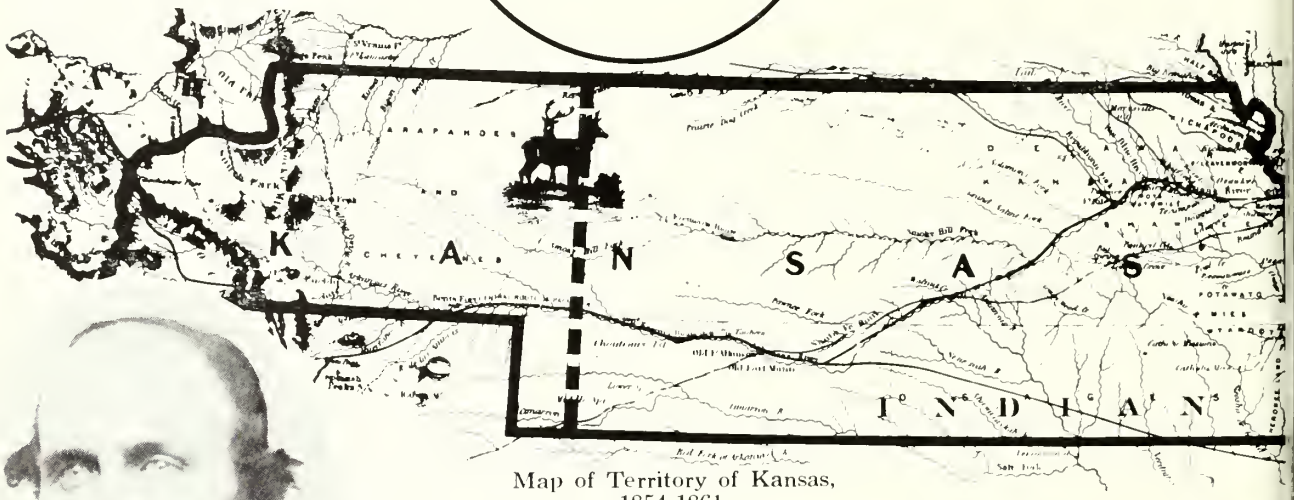
Every epidemic has its lessons for us if we will only heed them. The great lesson taught by this one is the truth of the doctrine advocated by Jenner, that vaccination is almost a certain preventive for small-pox; also the importance of revaccination, as well as that we must learn to distinguish between the true and spurious vaccination. My observation in the past winter has taught me to place no reliance in virus from a *revaccination*, especially as a preventive against an epidemic so malignant as the one we have suffered from here. Vaccination is trifled with, with most physicians, if it takes, as they express it in common parlance, it is sufficient. There is a deplorable ignorance in regard to this subject among physicians as well as the laity. When in the legislature the late Dr. Copeland, of Osage Mission, pressed a bill requiring all children attending public schools to be vaccinated by a regularly educated physician. Dr. Johnson, of Miami County, not one of that sort, very contemptuously replied: "It is all folly to require anything of the kind. A child falling upon a piece of glass can vaccinate itself if the glass has vaccine virus upon it." "Aye, if the glass has any virus upon it." It was well said; but does it not require some knowledge on the part of the vaccinator to distinguish between the true and false vaccination? It certainly does. During the past winter, when vaccination was the order of the day in Topeka (as each vaccination brought a dollar to the vaccinator), virus was procured from all sources; many physicians made no difference between that from a primary and a revaccination; a result of this carelessness was to weaken the public confidence in vaccination, notwithstanding the average per cent of deaths from small-pox in this county in the past year, has been at least twenty-six. Every medical journal, falling from the press, contains an article, the writer of which claims the honor of having discovered the means by which this Samson, which is slaying its thousands, may be shorn of its power to destroy. To-day the sulphytes are a specific; to-morrow xylol, next cohosh, and so the change is rung from one article to another in the materia medica. Still specifics, to the contrary notwithstanding, this pestilence is sweeping thousands of our fellow-citizens into the grave. Only a few days the glad tidings of great joy was published to the world by a member of this society, Dr. J. P. Root, United States Minister to Chili, South America, that he had discovered a certain specific for small-pox. A specific very simple indeed—only to convert the stomach of patient into a crucible for the manufacture of chloride of lime—only this, and nothing more

necessary to disarm small-pox of all its terrors. The Doctor, in language most vivid, describes his own case: "I was attacked very violently with symptoms of the gravest nature, being those of the 'confluent,' 'hemorrhagic,' 'scarlatinous,' and 'erysipelatous' character. Feeling the soreness of the throat increasing, counting the pulse as it gradually rose from its natural beat to ninety, one hundred, one hundred and ten, one hundred and twenty, one hundred and thirty, one hundred and forty, and more, with drops of blood oozing from the mucous surfaces and hemorrhagic spots appearing here and there on the surface of the body; with the skin, especially of the face and head, becoming more and more tumefied; with erysipelatous engorgement every hour; with intense febrile excitement steadily increasing, and being certain that speedily the brain would refuse its normal work, and hopeless delirium ensue." That the Doctor recovered as he did is evidence that he had simple non-malignant small-pox. Iron muriate tincture and prepared chalk, given alternately, is the talisman by which the Doctor disarms small-pox of its terror. As he says, the two form chloride of lime, and it is this latter which neutralizes the poison of variola. As it is well known that chloride of lime fails to destroy the infection of variola, it must be powerless to neutralize the poison in persons affected with the disease. As the fact is well demonstrated that boiling water will destroy the infection of small-pox, why not fall back upon the McElroy treatment, boiling water as a specific for small-pox. We cannot deprecate the so-called specifics enough, especially specifics for small-pox; they are the will-o'-the-wisp which allures so many men of our profession from the plain of practical, common sense to fanciful theories wove by gentlemen more fitted for poets than practitioners of medicine. If our country would be free from this terrible scourge, it must not depend upon specifics, but upon vaccination, as taught by Jenner, and by the way this epidemic has impressed upon us the importance of compulsory vaccination, for in that lies the safety of our people from another visitation like the present one, and not in specifics, although gentlemen tell us that they have discovered specifics for this disease, so none need die from it. The reputation of the so-called specifics depends upon their being given to patients with non-malignant small-pox—patients, the most of whom would recover if not treated at all. And every patient having malignant small-pox will die if treated by any specific ever heard of. When gentlemen find a specific by which they can save fifty per cent of malignant small-pox, then they may claim a great honor indeed. In the meantime if they wish to astonish the world, they had better search for the elixir of life, worry their brains in quest of the philosopher's stone, or try their hand upon perpetual motions, but for the love of suffering humanity say nothing about small-pox specifics in this day, when so many are dying from that disease.

My treatment was systematic, as I regard it as the only rational treatment for small-pox. Each patient was treated according to symptoms, or each symptom in each patient was treated by the remedy indicated.

A few weeks ago we read in the Philadelphia *Medical and Surgical Reporter* a translation from the German, of vinegar as a prophylactic for small-pox. I regret very much that I knew nothing of this till near the close of the epidemic in Shawnee County, as my opportunity for fully testing it had almost passed away before I became acquainted with the claim set up. You who read the article alluded to, will remember the author failed to say how many of the persons treated with vinegar had been protected by vaccination. Mr. Boyle's family, consisting of wife, four children and her brother, were all exposed to small-pox, the husband having it in the most malignant form; all were vaccinated. Four days after they were first exposed, I ordered vinegar for them all, as recommended by the writer alluded to. The children and brother all took the disease—three mild varioloid, and two small-pox distinct. The vinegar seemed to have no control over it; the disease was modified, as we might expect, by the vaccination. Whether vinegar is a prophylactic for small-pox is a question to be settled by the profession. (1873)

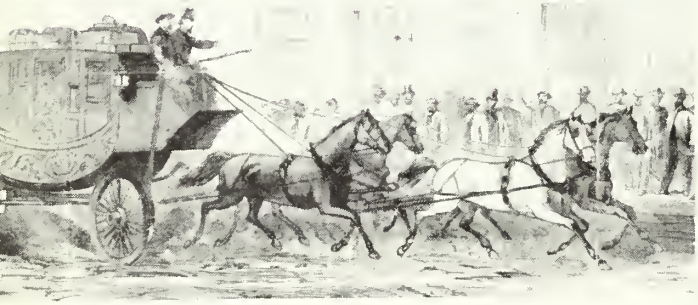
When Kansas Was The Frontier



Map of Territory of Kansas, 1854-1861.

Dr. Charles Robinson, first Governor of The State of Kansas—1861.

Fort Riley Post Hospital Medical Detachmer on steps of hospital, 1870.

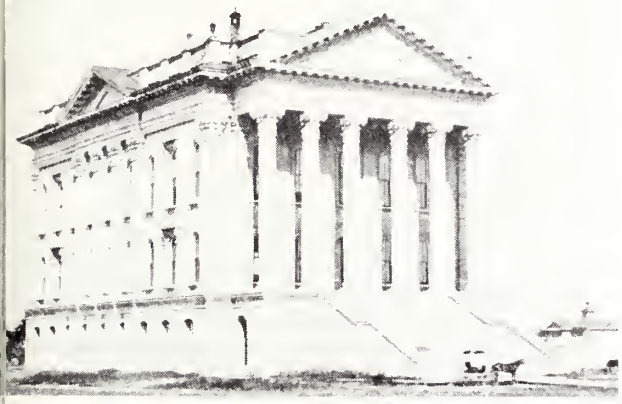


Overland Mail Coach leaving Atchison. 1866.

End of track of A. T. & S. F. Ry., 50 miles West of Dodge City, 1871.

Shooting Buffalo along The Kansas Pacific Railroad.

—And The Opening Years Of The 34th State



East Wing of State Capitol Building, Topeka, 1870's.

Old Windmill at Lawrence, built in 1863.

Planter's Hotel, Leavenworth, built in 1855.

Manhattan in 1860.

Valedictory Address (Address of President)

J. S. REDFIELD, M.D., Fort Scott

GENTLEMEN: In early time the thinkers worked with talkers for the common object of benefiting mankind. But after many years of discord the thinkers gradually withdrew, believing that they could better serve the human race by the absorption and study of phenomena. The thinkers have ever since been secretly watching the progress of events, and those undercurrents which were hidden from the masses, and in their own way quietly preparing mankind for those important changes we are now and then called upon to witness. To them it has been revealed who universally, even in the midst of apparent confusion, order and regularity reign; how even accidents, cholera and comets are all subject to the unerring laws of nature. It is no wonder that we hear such constant lamentations about failures of schemes and systems, when we find them taken in hand by empirical reformers, the natural tendency of whose minds is to deal with social matters in a narrow and piecemeal way, and who would in all probability, were they medical practitioners, treat small-pox in detail by cutting out the pustules! Advance in science can only be made by the close and thinking observer. Too many of us, no doubt, let golden opportunities pass, when by observation and thought we might have made discoveries that would have been invaluable to the profession and a blessing to mankind. It is true that we have text-books and laws laid down for our government, but it is also true that some of these laws, like the civil code, may be amended and improved. Who is there among us to-day who would dare accept his standard the practice of fifty years ago?

Many of us think we are well up in everything that is required to make good physicians and surgeons; but we must recognize the fact that there is much for us yet to learn, and it is a duty that we owe to ourselves and our profession that we should embrace every opportunity to learn it at the very earliest possible moment. We have a grave duty to perform, not unlike those in the profession who have gone before us. Changes are constantly going on, though fewer perhaps in the *materia medica* than in any other science. Astronomy struggled through many ages before the dawn of light smiled upon it, though it is now perhaps better understood than any other science. Geology has made rapid strides on the high road toward fame; yet it is in its infancy, and many generations must come and go ere it arrives at that advanced stage that we now find the science of astronomy. Geology does not pretend to go back to the creation of the world, or concern itself about its primitive state; but it does concern itself with the changes it sees going on in it now. We see everywhere, and along every coastline, the sea moving against the land, and nearly everywhere overcoming it; wearing and eating it down, and battering it to pieces; grinding those pieces to powder; carrying that powder away and spreading it out over its own bottom by the continued effect of the tides and currents. Look at the chalk cliffs of England, which once, no doubt, extended across the English Channel to the similar cliffs on the French coast. But we do not see chalk cliffs wearing away either on the eastern or the western coast of America; and why? Simply because we have no chalk cliffs to be worn away. The action of the waves of the ocean is the same the world over, but the substances with which they come in contact vary greatly. Hence, while they may cut away the chalk cliffs along the English and French coasts, they may heave up debris and earthy matter upon other shores. We all know that to diagnose a disease in London is the same as to diagnose a disease in New York; or for that matter, the same in any other portion of the world; yet I imagine that the members I see before me here to-day would have better success in their profession in Kansas than they would in the States of Louisiana or Minnesota. While many of the diseases common in this State prevail in those States, they are of a different type, and require different treatment. The well-read physician of New Orleans might treat a case of yellow fever more successfully than any member of this Association; yet when it comes to a case of pneumonia, intermittent or remittent fever, I imagine almost any of us could treat them with equal success with the best men in those States. We all study the same books, and receive instructions from the same professors; but we do not all practice upon the same subjects, nor live in the same climate.

And now let us look back over the history of our Society, and consider whether we have done our duty since its organization. Sixteen years ago the first session of the Kansas Medical Society was held in Lawrence, which at that time was a mere village. It has since grown into a beautiful city; but can we truthfully say that our society has kept pace with the growth of Lawrence and the balance of the State? Kansas then contained but a few thousand people; now it contains more than five hundred thousand, who look to us for medical aid in their hours of sickness and distress. Are we worthy of

the faith and confidence they repose in us? Do we really merit the patronage the people bestow upon us? The founders of our society—many of whom, thanks to the beneficence of a kind Providence, are still among us—intended to organize an association that would benefit every physician who became a member of it. It was to be a place where an exchange of ideas could be turned to the best account; where physicians could become acquainted with each other, and thus cultivate a friendship that would not only be beneficial to the association, but would grow with time, and shed a halo of sunshine around the declining years of the older members; while to the new beginner in this, the noblest as well as the most responsible science known to the world, it would ever be a school of information and a source of pleasure. Here the learned and aged members could, in a terse and clear manner, impart their lives' experience to the association which could be taken up by the junior members and turned to good account, for there is no physician, however well read, but can learn something from those who have grown gray in the service. The past history of our Association has not, it is true, come up to that standard laid down by its founders, yet it has accomplished much, and its future is brighter than ever before. The daydreams of our childhood are seldom, if ever, realized; hence we should not feel discouraged if we meet with some drawbacks, but add a little more energy and a little more perseverance, and we will finally arrive at that goal which its founders saw in the dim distance.

And now, gentlemen, let me thank you for your kindness and courtesy during the brief period that I have occupied the chair to which you called me; I retire from it with the earnest hope of meeting you all again at each annual session for many years to come. (1875)

Ruptured Perineum

C. V. MOTTRAM, M.D., Lawrence

A case of perineal rupture, with sloughing of vaginal walls, caused by impacted fœtal head and forceps delivery, resulting in almost *atresia vagina,* was reported by me at the last meeting of this society. The lady had become again pregnant, and anxious to have a living child, and the question arose as to the practicability of safe delivery, at full time, and was fully discussed. The majority were in favor of the inducing of premature labor, as the only safety for the woman.

Prof. Todd, of Kansas City, visited the case with me, and we decided to allow gestation to go along to full time, and when labor came on, resort to such surgical means as might be necessary to effect delivery.

Her general health was good during the summer, though she was several times threatened with miscarriage, having very strong uterine pains, and twice, considerable "show."

On the 25th of February I was called, and found her having regular pains, but not strong. They continued through the day and night till four o'clock a.m. of the 25th, when they seemed to flag. I then administered a full anodyne and left. She slept well for some hours. The pain returned in the morning, and I was called about ten o'clock, and found them recurring with regularity and force. I sent for Drs. Stuart and Morse to assist me. The cicatricial ring seemed firmer than at the commencement of gestation. I could not introduce my index finger beyond the second joint. The pains continued strong, and I could feel the patulous os through the ring; but there was no dilation at three o'clock. I then put the patient under the influence of chloroform, and divided the cicatrix, making several incisions completely through it on each side. I then used Molesworth Dilator, using warm water to distend the rubber tube. With this instrument I dilated the ring to a trifle over two inches. The pains continued strong during the anesthesiæ, and I waited for them to bring down the fœtal head. The dilation went on to the size of half a dollar, the water sack presenting during each pain, but the head did not engage in the superior strait. After waiting some time and no progress seeming to be made, I ruptured the membranes, evacuating the waters, and found the presentation to be occipito-pubic, the occiput impinging upon the pubic arch. The pains continued energetic after the evacuation of the water, but there was no advance of the head, as the force was spent upon the pubic bones. I then made strong pressure upon the abdomen, just above the pubes, while with two fingers in the mouth of the womb, I made pressure upwards and backwards, and to the right, against the fœtal occiputs, and the head was dislodged from its resting place on the pubic bones, and entered the superior strait, making the rotation become the left-occipito-acetabula position, or first, of Baudelocque. *Very little* progress was made during the next two hours. The patient was again anesthetised and forceps applied. The descent was slow indeed, but finally the head became engaged in the bones. During

the pains I applied *all* my strength, making traction on a line corresponding to the axis of the strait, increasing the power by the leverage of the forceps, moved from side to side. In this manner half an hour or more passed, in the passage of the head through the bones; finally it entered the inferior strait, the occiput beneath the arch of the pubes, and the vertex sweeping the perineum, which was put upon the stretch and thinned out like tissue paper, threatening laceration of the floor of the pelvis, and what remained of the recto-vaginal septum as I had feared. To prevent this impending calamity, I enlarged the outlet of the passage, by two *deep* incisions, one on each side of the vagina, through the vaginal wall, labia-minora, and into the labia-majora. These relieved the tension of the perineum, permitting the delivery without accident at 5 o'clock p.m. No considerable hemorrhage occurred from the incisions.

The child was "still," but pulsation was strong through the cord. I immersed the body in a vessel of warm water, inflated the lungs, kept up artificial respiration, and did not sever the cord till natural respiration was established, the pulsation continuing in it. Just how much time was occupied in resuscitating the child I do not know, but it seemed a long time. After removing the placenta, I closed up the two last lateral incisions with metallic sutures. They healed mainly by first intention. I kept the vagina well cleansed with carbolized water and salicylic acid. After four days I inserted a sponge tent, and kept one in the vagina for the most of the time, till the incisions through the cicatricial ring had healed. The *ring* disappeared, and the vagina is capacious enough for most purposes.

From later examinations, I am satisfied that while the woman is large and seems to have an ample pelvis, she really has a *deformed* one, the promontory of the sacrum *projecting unusually,* materially lessening the antero-posterior diameter of the superior strait, the ischii also being abnormal.

In consequence of the great pressure to which the head was subjected, in being dragged through the contracted passage, there resulted paralysis of one side of the face. The child cried only on one side, and one eye stared wild and open, without winking. After a few weeks the palsy passed away, and the child is now pretty, active, and healthy.

I am under many obligations to Drs. Stuart and Morse for their very efficient assistance in conducting the case to a successful termination. (1877)

Dr. Brock offered the following, which was adopted:

WHEREAS, On the fourth day of the Proceedings of the American Medical Association of 1869, a resolution, by Dr. Moore, was adopted, that

WHEREAS, The contract system is contrary to medical ethics.

"*Resolved,* That all contract physicians, as well as those bidding for practice at less rates than those established by a majority of regular graduates of the same locality, be classed as irregular practitioners."

Resolved, That the interpretation of this society, the design was in no wise to effect the usual contracts rendered necessary to secure efficient attendance on the poor of the city or county; nor the contracts necessary to meet deficiency of medical officers under certain circumstances of emergency in the army. But that any person who contracts to attend families by the year at a stipulated price, or who charges less than the established price determined by a majority of the regular physicians in his locality, is in clear violation of the above resolution, and should therefore be classed as irregular. (1871)

Practical Thoughts upon the Treatment of Fractures

J. M. CARPENTER, M.D., New Lancaster

The treatment of the different forms of fracture is a question that has been agitating the minds of our surgeons and physicians from the earliest period of our medical history down to the present time; and judging from the discussion at the late meeting of the American Medical Association, it is far from being settled.

If it is a fact that shortening actually does occur in a very large proportion of the cases of fracture of the femur, under the present form of treatment—as was stated by the leading surgeons at that meeting with but one dissent—it is time that some change should be made in the form of apparatus, or in the manner of adjusting the fractures, that better results may be obtained.

And while I am willing to admit it is safe for the rural surgeon to follow the teachings of our text-books, as a rule, in his practice, I do not see how he can do so successfully in the matter under consideration, on account of the great diversity of opinion among our leaders.

Why is it, in looking over the different works upon surgery, and the catalogues of our instrument-makers, that almost every surgeon of eminence has a splint, or an apparatus, for treating one or more of the many different forms of fracture, or at least an improvement or modification of the existing ones? There can be but one answer, and that is—they are all unsatisfactory.

Under the circumstances, all can see how difficult it is for the young surgeon who is deprived of the services of an instrument-maker, on account of distance, and who has not—as most of us who practice, as has been said, at the Cross Roads, have not—the necessary amount of funds to purchase, and the building required to store the car-load of splints and machinery demanded to follow the directions of our text-books. We are, necessarily, compelled to substitute something that we can obtain easily, and which will answer the purpose equally as well, if possible, as the more complicated and expensive apparatus recommended by the different authors.

It is not the purpose of this paper to call attention to anything that is really new or novel, but simply the practical application of a form of dressing of which all have heard, and many have used, but with a great deal of uneasiness as to the results, especially when applied as the first dressing in cases of fracture. I refer to the fixed dressing, which may be composed of any material that is soft and pliable while being adjusted, afterwards hardening so as to encase the limb in an immovable apparatus, such as plaster of paris, glue, starch, etc. As I consider the plaster the best of all, on account of hardening rapidly, not shrinking in drying, and being easy of application, I always use it in preference, when it can be obtained.

The question we shall consider first is the one that refers to the time at which the dressing should be applied, as that seems to be the one that has excited the most discussion, and the views of most of our eminent surgeons are diametrically opposed to the one to which I wish to call your attention.

Agnew thinks the only proper period to apply the plaster roller in the treatment of fractures is after the inflammatory swelling has subsided, and the surgeon can calculate on the fixed dimensions of the part.

Gross approves of it, but would not apply it until the expiration of ten or fourteen days. He says: "I am myself averse to the early use of the immovable apparatus, convinced that the safest plan is to wait until there is complete subsidence of the resulting inflammation and swelling; employed earlier, it *may* induce undue compression, and thus compel removal."

Frank H. Hamilton says "that in all those fractures which are accompanied with such injury to the soft parts as to render subsequent inflammation inevitable, or probable, this form of dressing exposes to congestion, strangulation, and gangrene. Whatever its advocates may say to the contrary, the simple fact is before us, the number of accidents resulting from this practice is far out of all proportion with any yet introduced. I have met with them myself in all parts of my own country, and the journals abound with records of disaster from this source."

The above are the opinions of three eminent surgeons, and, in fact, a large majority of the surgeons of this country as well as those of Europe hold the same views in regard to the matter.

The advocates of the early use of the immovable apparatus claim most for it the first ten days, urging that this early period is the critical one in the case, and that, by that dressing, undue swelling and dangerously intense inflammation are prevented.

Professor Dawson, of Cincinnati, advocates the use of the dressing but claims that the Bavarian plan is the proper one to use, for that can be easily removed to inspect the part at any time.

I here take the liberty of copying his description of the application of the dressing according to the above plan:

"1. A coarse quality of flannel and a good article of plaster of Paris are necessary. The more open the woolen tissue the more of the mineral it will take up; cotton textures do not answer well. The plaster should be mixed so that it may be dipped up with a cup, to be poured over the limb. It should be but little beyond the consistence of cream; cold water should be used; hot promotes too rapidly the hardening process.

"2. How is it applied? Here is the key to success. It must be put on so as to press evenly all parts of the limb, or it will be worse than a failure. It must fit as exactly as a well-fitted stocking. For illustration, let us select a fracture of the middle of the leg. Take two pieces of flannel that will extend from just above the condyles of the femur to three or four inches below the heel. Sew these together in the middle by two seams about one-quarter of an inch apart; this is to form a hinge; between the seams no plaster is admitted, and it must not reach the flannel along this line. Then place this under the limb so that the hinge line may be directly in the middle. Bring the sides of the inner layer up, and join them with a seam along the tibial spine, down over the dorsum of the foot, to the space between the great and second toes.

"Now sew together the parts of the inner layer, which is below the heel—make this union along the sole of the foot to correspond in line with the junction on the front of the leg. The foot and leg are now completely stockinged; cut the superfluous flannel down so that a roach is left about one inch high. Mix the plaster, and whilst an assistant is pouring it over the stockinged leg, with the hand apply it evenly to all parts.

"Then spread it over the inner surface of the outer layer of flannel, and bring this up and adjust it to the inner layer smoothly. The hand here, also, must be the instrument for molding the parts, for pressing the plastered flannel, for adjusting it to all the elevations and depressions of the limb. When the two layers come together at the roach be careful that at this point you make the angle sharp—a right angle. Much of the excellence of the dressing will depend upon the care taken of this; there must be no want of fit, no irregularity in the line. In this you may avail yourself of the hands of your assistant, in pressing the parts into position. For the purpose of examining the fracture in this stage—or, if you prefer, you may wait twenty-four hours or longer—the stitches uniting the inner layer may be cut and the sides pressed apart, like the valves of a clam-shell.

"3. The case or splint can be kept in place after it has been divided, by cutting notches in the roach, and at each notch surrounding the limb by a fillet of muslin. The untying of these fillets allows the greatest facility in inspection.

"4. Provision can be efficiently made in compound fracture, or where abscesses have been developed in the progress of the treatment. A section can be sawed out from one seam almost to the other without seriously damaging the supporting power of the appliance. A hole can be punched where a drain is desired.

"5. If the swelling subsides so that the case becomes too loose, a mattress of lint or cotton-batting may be laid in, and the leg be again inclosed. This lining makes a pleasant addition.

"6. The apparatus fits the limb so closely, so accurately is it applied to all the elevations and depressions, that shortening cannot occur. In the leg, the ankle and knee, make the two points between which the fractured bone is extended, and when the fragments are adjusted, the limb is so completely incased in the mold that malposition is next to impossible. The same security can be given fractures at any point in the upper or lower extremity."

The plan I have adopted is different in some respects, from the old method or the above, and in some respects I think it has advantages over both.

Allow me to say that the reason there is such a diversity of opinion regarding the dressing, is owing to the fact that the directions for applying the apparatus by its advocates have not been explicit enough to be fully understood. And, in fact, the cuts, that I have seen of the dressing, after its application in the different works upon surgery, are intended to lead to a very serious error in regard to the subject.

You will notice in one of these cuts—and I think it is a fair representation of all that I have seen—that all of the toes are exposed. Now I am well aware (and I think I can explain so that all can understand) that if an immovable dressing is applied in that manner to an injured limb, that we will have, in a large proportion of cases, as Hamilton says, congestion, strangulation, and gangrene.

Let any gentlemen take a piece of tape and commence bandaging his finger at the distal extremity, and he will find that he can draw the tape quite tense without discomfort; let him do the same with all the fingers and the thumb; then take a wider bandage, and bandage the arm, being careful to have the bandage press upon the extremities of the fingers, first keeping the tension as near as possible the

same as he passes upward, and he will find that the unpleasant sensation arising is caused more by the fixed position than by the pressure exerted. For, as he becomes accustomed to the position, the unpleasant sensations disappear. When he removes the bandage, he will find that, instead of being congested, the parts will be almost bloodless.

Now, if he wishes, let him apply it as shown in this drawing, commencing above the fingers, keeping it as near as possible as tense as before, and notice how soon the fingers will become congested and painful, requiring the removal of the bandage. If the pressure is exerted at different points along the arm, the same results will follow.

This, in my opinion, is the reason, as before stated, that our friends have opposite views in regard to the practicability of the dressing, as well as the reason that the plan described by Professor Dawson can be improved.

I claim that it is important that we not only have the pressure commence at the distal extremity, but that it be as near as possible the same as far as the bandage extends, and that form which will do this best is the one we should use.

Professor Dawson, in his description, says: "If the case becomes too loose, a mattress of lint, or cotton-batting, may be laid in, in order to tighten the dressing, *and this lining makes a pleasant addition.*" As I believe it is the paramount duty of the surgeon to give his patients all the comfort he can possibly obtain for them, I use the *pleasant addition first*—that is, I envelop the limb in a layer of cotton-batting, or, what is better, cotton-wadding, as soon as the fracture is adjusted. Another reason for using the wadding is that it is elastic, consequently there is not as much danger of compression at first, and the bandage does not loosen as rapidly upon the subsidence of the swelling as it would if the unyielding plaster was next to the limb.

In regard to the bandage, if I am correct in my reasoning, we should apply it in the same manner that we would if called upon to bandage a limb which was afflicted with a varicose ulcer; and I am satisfied that if any gentleman present should ask me to bandage a limb of that description, and I should take a yard of flannel and envelop it, tying in three places, that he would consider that I was not fulfilling the indications in the premises; for we are taught that we should be very particular in such cases to commence bandaging at the extremity, and have the pressure equal upon all parts of the limb, and that it can be accomplished best by a bandage that is not too wide.

I therefore use a bandage not exceeding three inches in width, preferring the material to be cheap white flannel, although any open cloth will answer; have a good article of plaster rubbed into the bandage, rolling loosely, thoroughly wetting before using; apply the bandage carefully, the same as you would in bandaging an ulcer; have it extend far enough to cover the joint above the fracture, in order to prevent any motion of the muscles that would have a tendency to displace the fragments.

In order to get sufficient firmness to the dressing, I take pieces of flannel from two to three inches in width—depending upon the size of the limb—of sufficient length to reach from the extremity as high as the bandage extends.

Mix a portion of the plaster in a suitable vessel, about the consistency of good paint; apply to the sides of the limb with an ordinary paint brush; take the strips of cloth before mentioned, apply them horizontally to the sides, being careful to leave a vacancy in the center of the limb underneath, where I wish to have the hinge in the dressing, also leaving space above, in order to open easily, if necessary. Apply some more of the mixed plaster to the outside of these strips, and, if needed, more strips, until you get the dressing of the required firmness, the strength being limited by the amount of strips and plaster used. This, I think, is preferable to using clear plaster, as you have a much stronger dressing, with less weight. After smearing the outer layer of strips with the wetted plaster, take a wrapper similar to the outside wrapper described by Professor Dawson, and apply over all, drawing tense, but being careful to have the edges that come together in the center, upon the upper surface free from plaster, to fasten them after it hardens.

We then have a bandage that is strong and better fitting than can possibly be obtained from the Bavarian plan. The pressure beginning at the extremity, and being equal as far as the bandage extends, all that is neccessary to open this dressing is to divide the one thickness of the under bandage, which can be done very easily if we moisten with alcohol, strong brine, or diluted muriatic acid; then you have the same dressing as the one described by Dawson, but far superior in strength, compared with weight.

And I am satisfied, if the dressing is applied as above described, there will be no occasion to open, except it be to tighten the bandage, as the pressure is exerted in such a manner that, instead of producing strangulation, it will actually deplete the part, thereby decreasing the tendency to inflammatory action, and placing the limb in the best possible condition that can be obtained to hasten the union of the fragments.

Another point that is being disputed in the treatment of fractures is that of those fractures that involve the joints, as that of the condyles of the humerus, most writers claiming that passive motion

should be used early in the treatment. Dr. John C. Warren, of Boston, believes so firmly in it that he recommends "that no splints be used" in such cases, and that "the patient be accustomed to easy and daily movements of flexion and extension," and adds, "the accomplishment of this process is so very painful that few patients have the courage to submit to it, and few surgeons the firmness to prosecute it"; and to this cause he attributes the loss of the use of the articulation in a great many cases.

Prof. Hamilton says, "Within seven days, perhaps earlier, passive motion must be commenced and perseveringly employed, from day to day, until the cure is accomplished."

Prof. Gross says, "Passive motion should be commenced at the end of two weeks."

Sir A. Cooper advises, "that passive motion should be commenced at the expiration of three weeks after the accident, in the child, and a month in the adult." This practice has been recommended and followed by most English surgeons.

Miller, of Edinburgh, Erichson, Jewett, Malgaigne, South, and others, hold similar views.

I am aware that all of the above-named surgeons are men of recognized ability, and among the leading members, if not at the very head, of the surgical profession in America and Europe, and we should be very loath to depart from any of their teachings unless we have good sound reasons for so doing, and even then we should watch closely the results of our departure.

Those of you who were at the meeting at Lawrence, two years ago, will remember that I called attention to this subject at that time, and that I stated that I believed the cause of the stiffening of joints, in case of fractures, was due to two causes: first, the change consequent upon the loss of mobility that was absolutely necessary to have perfect union of the fragments of bone; second, the inflammatory action that was set up by the irritation produced principally by the movements of the fractured parts, thereby causing a blending of the tendons with their sheaths, and the binding down of the parts designed to be free by the products of inflammation. The first cause produced a condition that was easily overcome by passive motion after the parts were firmly united. But the second was the principal, and, in fact, the only one which would produce permanent disability; and consequently it was the one against which we should use our best energies; and that I believed that the indications were best met by *that plan* of treatment that would keep the parts perfectly at rest, limit the blood supply, thereby reducing the chances of inflammation to such an extent as to have but a small amount of exudation, and, consequently, but slight adhesions—and, in my opinion, the plaster of paris bandage, applied as I have described, was *that plan.*

I find, in looking over the *St. Louis Medical and Surgical Journal* of last June, that Prof. John T. Hodgen has an article upon the subject of passive motion in cases of fracture involving the joints. His conclusions are as follows:

"1. The stiffness of joints resulting from suspended motion, if persistent, should be treated by passive motion.

"2. During the existence of inflammation, from a fracture involving a joint, passive motion can only result in harm.

"3. Passive motion, after the union of fractures involving a joint, and after the subsidence of inflammation, will aid in the restoration of function.

"4. The time that passive motion should begin cannot be named in weeks, or months; but should be determined alone by the condition of the part.

"5. Perfect rest and equable pressure are the best means of preventing anchylosis, resulting from inflammation, in case of fractures involving joints."

And adds:

"I began the use of plaster of paris dressings in 1862, and have continued to use them to the present time in cases involving the knee, ankle, and elbow joints, with the purpose of preventing motion and securing uniform pressure, and I think I have never had a case injured by such a dressing. I will further add, that I have not made passive motion in any case of fracture involving a joint, until the union of a fracture was firm, and the inflammation had subsided. In the earlier part of my practice, I expended a good deal of time in trying to devise a good elbow splint that would admit the passive motion, but never succeeded in applying a hinge splint so that the center of motion in the splint and limb corresponded so exactly as to permit motion at the joint without a degree of disturbance at the site of fracture, if near the joint. To-day, I believe it fortunate for my patients that I did not succeed, for the reason that I believe that motion, *during the treatment of a fracture,* insures, rather than prevents, anchylosis from inflammatory deposit."

With the above I heartily agree, and feel assured that any member of the profession will adopt the fixed dressing in the class of cases referred to, will find that the results will not only be more satisfactory, but the comfort of the patient will amply repay him for the fears he may have had when applying the dressing; as every one who has tried the old method well remembers his feelings, as he used passive motion in those cases before perfect union of the fragments had been secured, and the slightest movement would produce great distress to the patient. For, as has been stated by Prof.

Hodgen, I believe it is almost an impossibility to apply a hinge splint in such a manner as to permit motion of the joint without displacing the fracture more or less, especially in those cases where the joint is actually involved, and they are the only ones that require passive motion at the time recommended by the authority above mentioned.

It is true that I have not used the treatment in a very large number of cases, but the results have been the same in all, and they were so satisfactory that I feel impelled to report, hoping to hear from others who may have used the fixed dressings in those cases; believing, as I do, that all that is necessary is to give the treatment a trial to have its merits fully understood.

Report of Cases

Case 1—J. G. Child two years of age; German; very fleshy; both ulna and radius fractured about center of lower third. Cause, fall from top of shed used as a stable. Seen about one hour after occurrence. Considerable contusion of soft parts, and consequent congestion and swelling. While examining the case, I made up my mind that if I bandaged the arm, as we are taught to do in such cases, that I should have trouble, as it would be necessary to *fix* the parts; as the child was so young he could not be reasoned with, and, consequently, would be continually moving the arm and likely attempting to remove the bandage with the other hand, thereby producing pain and increasing the inflammatory action. The child being so very fleshy, and the weather warm, I was fearful of the result if bandaged sufficiently tense to hold the splints in place, unless equable pressure be exerted upon all parts of the arm. I therefore resolved to use the plaster bandage, watch the case closely, and open when necessary, supposing it would certainly have to be removed within the first twenty-four hours; but then I would have a splint that would fit the parts exactly, and it could be loosened or tightened at pleasure.

I applied the bandage as directed, being very careful to bandage the fingers first, and have the arm well protected by the cotton-batting. As soon as the dressing had become firm, I allowed the parents to take him home—a distance of four miles—instructing them if the child should suffer much, or if the ends of the fingers should begin to look purple, showing that the limb was becoming congested, to let me know immediately; on the contrary, if he seemed comfortable, and the fingers retained their normal size and color, they should wait until the eighth or tenth day, and then bring him down so that I might examine the limb, and see if any change was needed.

Being very busy, I thought no more of the case until I saw the father, five weeks afterward. Remembering then that the time had passed when he should have been at my office, I asked him why he had not brought the child down. His reply was: "Vell, doctor, I vas so busy, und de baby vas so vell, I tell mine frau he vas all right und ve vill risk it; for de baby he not cry, und his arm he not swell, und you tell me in five weeks dat vat you put on cun come off; I take him off last Friday, und de arm vas shust like it vas first—all right—und I's got de moneys to pay yo' for de job."

Remembering the old adage, "All is well that ends well"—and when did a doctor have a better ending than that to any of his cases?—I thanked the German for the fee, and resolved in my own mind that I would try the same treatment in my next case of fracture.

As it would be trespassing upon your valuable time to report all the cases in which I have used the dressing, will simply say in regard to those cases where there was but little contusion of the soft parts, that they all did well, having no trouble with the dressing, except in some cases it required opening to tighten, but in no case did I have to open to loosen the dressing.

Case 4.—L. R. Girl, eight years of age; fell from cattle-shed, fracturing the ulna through the middle third. As she fell about seven feet, there was, necessarily, considerable contusion. Did not see the case until next morning, as parents did not think at first that the limb was broken. Found the arm very badly swollen, and the patient suffering intense pain upon the slightest motion. Administered chloroform, and applied bandage. Third day, opened to tighten the dressing, also upon the seventh day; after that no more trouble. Result perfect.

Case 7.—Mr. M. Fracture of lower end of radius, involving the articulation, the styloid process being broken off. Cause, being thrown violently from wagon by runaway team. Seen about ten hours after accident. The gentleman being quite fleshy, the parts were much swollen and very sensitive. Applied plaster dressing; was compelled to change once, and open and tighten twice, on account of reduction in size of limb. Did not allow any motion until the end of five weeks. Some stiffness at first, but in short time motion was perfect and but very little loss of strength, unless the arm is flexed and held in such a position that the strain is upon the external lateral ligament, and even that has nearly all disappeared at the present time.

Case 8.—Willie B. Fracture of middle third of humerus. Cause, kick from horse he was leading. Seen in about two hours. Parents had lain the arm upon a pillow, and had kept up a continual dripping

of cold water on the part, as it was the last of May, and the weather quite warm. Found the arm badly bruised from the effect of the kick. Succeeded in reducing the fracture with but little trouble, and I am willing to admit I had the fear of Hamilton's censure in regard to using the dressing in such cases. But believing as I did, that the best way to prevent inflammation was to procure rest and to reduce the blood supply, I was very careful in enveloping the arm in cotton-batting and in having the pressure of the bandage to commence at the very extremity of the fingers; drawing moderately tense, I applied it, having the arm flexed to relax the biceps, and extending up on the shoulder. I was very particular in my instructions to the parents in regard to watching the ends of the fingers, and if there was any change to let me know immediately. Did not see or hear from the case until the end of a week, and then they brought the boy to my office, reporting that he had suffered very little until that morning, and that was caused by the movement of the part on account of the dressing being too loose. I opened the dressing and found the swelling and ecchymosis nearly gone. Some of the cotton adhering to the contused portion of the arm, as it seemed quite firmly fixed, and as there was but little soreness, I left it there. Reapplied the dressing after cutting the edges so I could tighten sufficiently. It was removed at the end of five weeks, the boy in the meantime attending to any work he could do with the other arm.

Case 10.—Willie S. Aged six years. Fracture of middle third of femur. Cause, falling down stairs. Seen four hours after accident. Limb swollen to almost twice normal size; as parents had simply placed him upon a bed, leaving the limb in the shape it was at the time the accident occurred. Administered chloroform before reducing; after reduction, applied adhesive strips to the sides of limb, extending above the knee, as recommended by Prof. Sayre, in the treatment coxalgia.

After encasing limb in plaster, which I extended above the knee to prevent any motion of that joint, I fastened a pulley to the foot of the bed, so as to have weight attached to adhesive strips sufficient to counteract the contraction of the muscles of the thigh, and keep the limb down to its normal length.

The cotton I used at first was a very poor article, and consequently it produced some irritation; I was compelled to remove the dressing the second day, but found the swelling greatly reduced; reapplied the dressing, using a good quality of cotton; patient rested well; opened the eighth day, and found the limb one-eighth of an inch longer than its fellow; swelling mostly gone. After trimming edges of bandage, reapplied, instructing parents to remove weight during the day, and allow the child to move about in the bed as much as he desired, but to be sure and attach weight at night, and if bandage should become too loose, tighten the strips which had been tied around the limb to hold the bandage in place. At the end of three weeks the child was placed upon his feet, and allowed to walk with the aid of a chair or crutches. Removed the dressing at the end of six weeks; found the limb quite strong, and instead of being shortened, it was at least one-tenth of an inch longer than its fellow. At the present time the child is not certain which limb was fractured, and it requires very close examination to ascertain the fact.

Case 14.—Willie M. Age, six years. Fracture of inner condyle of humerus. Cause, being pushed from a high fence by a play-fellow. Seen five hours after the accident. As swelling was very great, bandaged the thumb and fingers with narrow strips before applying the dressing; adjusted fracture, placed the limb in mid-state between pronation and supination, applied the dressing carefully; opened in three days to tighten, and again at the expiration of eight days; child suffered but very little; did not allow any motion until the end of five weeks, when dressing was removed and union of the parts found to be perfect, with but very little rigidity of joint. Used friction and passive motion, and in a short time good use of the limb was obtained. At the present time he has no difficulty in moving the arm in any direction.

Case 19.—Mollie F. Fracture of upper third of femur. Cause, falling eight feet from loft upon hard floor. Seen eight hours after accident. Treatment the same as case 10, using chloroform, being assisted by Dr. Briggs, of Rockville. Results good. Limb, after removal of dressing, one-eighth of an inch longer than the other. At the present time but slight difference in length, and use nearly perfect.

Case 22.—C. K. German; aged thirty. Fracture of lower end of tibia and fibula, being the second variety described by Erichson, or what is called Potts' fracture. As the fibula was fractured about three inches above the ankle, and the tip of the malleolus internus was splintered off the tibia, the foot being rotated outwards. Cause, falling off horse against a bank, while running at full speed—leg being caught underneath. As can be readily understood, there was a great amount of swelling, and the parts were badly contused by the violence and the weight of the animal he was riding. Patient lived eight miles distant, and it was some time before he was seen. As I considered this one of the best cases I had seen to test the dressing, I was very careful in its application, padding the inner part of the lower end of the leg well, to overcome the de-

formity; placed wadding between the toes, and extended the dressing above the knee. Advised him to let me know immediately if he should suffer much, or if the end of toes should become livid. Seen at the end of six days, dressing removed, and additional wadding placed inside, to tighten; readjusted on tenth day, and again on twenty-first. Patient after that allowed to move around upon crutches, advising him to bear as much weight upon the limb as he could without causing discomfort, and no more. At the end of six weeks dressing removed. Accident occurred last September; at present time he is doing his ordinary work as a farmer with but very little inconvenience; limb swells slightly if used too much in walking.

Case 24.—A. H. Age, forty years. Lower third of tibia fractured in two places; fibula in upper third. He was attempting to hitch a pair of young horses to a wagon, when they became frightened, running in opposite directions, one of them striking him in the breast with its hip, raising him from the ground and whirling him violently around, striking the tibia against the wagon tire, or some other hard substance about that width, as a piece about two and a half inches in length was broken out of the tibia, and when seen was pressed outwards about one-half inch, the bone above and below showing the depression very plainly. The supposition is, that the fibula was broken when he fell upon the ground. Seen in about twenty minutes. Some contusion, but scarcely any swelling. Adjusted the fracture, and applied dressing. Some pain on account of pressure upon anterior tibial nerve previous to adjusting fracture, but not severe. Examined on eighth day, and on twelfth was allowed to walk to dinner-table, with the aid of crutches, since which time he has moved about more or less every day. Accident occurred four weeks since; shall remove dressing when I return, and am satisfied the results will be as good as in any of the cases I have reported.

In conclusion, permit me to say that all of the cases reported are still residing in the vicinity of New Lancaster, and the results of the treatment can be verified at any time.

The object that I have had in view in the presentation of this paper is, that those who practice, as I do myself, in the country, where we have not the advantages derived from the instrument-maker that can be obtained in most, if not all, of our cities, and are necessarily compelled to manufacture as well as adjust our appliances, may obtain a hint which they can improve upon, thereby assisting them in some of the difficulties which all rural surgeons are compelled to surmount. (1879)

Atelectasis

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This disease consists in the imperfect expansion of the lungs by the first inspiration after birth—that is, in a permanence of the fœtal state, in the lung of the new-born infant. It is to be regarded as a disease dependent upon restricted functional development at the time of birth, and not upon any original defect of formation in the respiratory organs. When at all extensive, atelectasis terminates, sooner or later, in death; under favorable circumstances, however, in early and complete, or tardy and imperfect, recovery. During the first few days after birth, it may still be possible that the evil may be surmounted by a vigorous penetration of air; whereas, at a late period, organic changes supervene, which forever incapacitate the undeveloped portion of the lung from performing its proper function. There is, however, still wanting a complete account of this disease, as regards both materials and pathological deductions. I will attempt to furnish as accurate an anatomical description as presented in several cases which came under my observation while I had charge of the Kansas State Insane Asylum, at Osawatomie.

An entire lung, or even an entire lobe, was seldom found in a state of atelectasis; but for the most part, only single and scattered lobules.

Experience shows that certain portions of the lung are especially prone to retain the fœtal condition, namely, the inferior lobes of both lungs, and the posterior half of the remaining lobes generally. Yet we find examples occur of several lobules near the anterior surface being found in like manner undeveloped.

The diseased patches displayed brown-red, or rather bluish-red color, which is more intense if the entire lobe is uniformly expanded—in which case, it is marked off by a sharp contour from the surrounding pale-red, healthy substance. When, on the other hand, scattered cells within such a lobule have become inflated, the violet color is interrupted here and there, and passes by a gradual transition, and without any distinct boundary, into the natural shade.

A distinguishing feature of the disease is this, that the above patches upon the surface of the lungs at all times exhibit a slight depression, the superincumbent pleura remaining perfectly smooth and polished. A lobe, either entirely, or for the most part, in this condition, is never found enlarged, but, on the contrary, of much smaller dimensions than the others, and almost as much collapsed as in the fœtus, which is generally deeply imbedded within the thorax, and drawn down toward the entrance to the bronchii and blood-vessels. Hence single diseased lobules do not obtain the same elevation of surface as the healthy ones with which they are surrounded, but, as already stated, form depressions, more or less considerable, so that the general aspect may be likened to the dimples created by emphysema in adult lungs. Neither by incision nor pressure is any crepitation produced, unless when a few air-cells happen here and there to have become expanded. The delicate reddish froth is never found here as in healthy parts of the lungs, but merely a small quantity of serous, slightly sanguineous fluid. The cut surface appears smooth and uniform, without a vestige of granulations; the whole of the diseased structure is not softened, but rather of a hard character, still without the tenacity of the healthy parts. When a patch so situated is cut off and placed in water, it sinks to the bottom.

When atelectatic infants die in a few days after birth, it is generally possible to dilate, artificially, the undeveloped parts. The depressed lobe is then seen to rise, by degrees, to the level of the rest, and assume the color, permeability, and other characters of sound lungs up to this point; had other circumstances been favorable, perfect recovery might have taken place.

When, however, the little patients have survived for weeks or months, this infiltration seldom succeeds, or only imperfectly. At this juncture, the unexpanded pulmonary cells are for the most part coherent—a remarkable fact, seeing how long the lungs continue to remain unexpanded in the fœtus without adhesion even taking place. Whatever ulterior transformation goes on in the diseased parts—which is not satisfactorily determined—it is, however, more than probable that not a few indurations, especially the small calcarerous concretions, sometimes occurring without any obvious cause, at particular spots within the general structure of the lungs (generally at the back of the inferior lobes), are, to some extent, referable to the above sources. At all events, it may be observed generally that, in atelectasis, the boundary-line between the diseased and healthy substance becomes less and less distinct in proportion as life is prolonged.

At the earliest period of infantile existence the contrast is very decided, the diseased parts being immediately surrounded by pulmonary texture in all respects natural and healthy. In infants who die of

atelectasis, invariably will be found the *foramen* of the heart unclosed; a fact confirmed by observation, which at that stage of life is not unusual. The brain usually is found in a congested state. When death follows soon after birth, the body has the appearance of being generally developed, but is extensively ecchymosed; the hands and the toes usually are clinched, accompanied with foam in front of the nostrils at the closed mouth. When, however, the disease has been of long standing, the body is usually wasted and wrinkled. Under these circumstances, both the affected and the adjacent parts are found inflamed, if not in a state of suppuration. Inflammation is not necessary, and not frequent, in the sequel of atelectasis. I have never met with a case of inflammation which could be traced directly to the diseased lobe.

I would here state that atelectasis, with the characteristic features above described, is not at all times distinguished from other diseases, that condition not having been duly recognized, and frequently has been confounded with other similar pulmonary diseases. I am here under the necessity, however hazardous it may appear, of submitting these discordant views to the ordeal of critical examination.

French writers who first turned their attention to the changes in the pulmonary texture of new-born infants refer to this disease under the head of *pneumonia lobularia*. The German writers have, to some extent, adopted the same view.

In atelectasis, the coloring of the diseased portions of the lung approaches to a violet, their exterior appearing smooth and glistening, so as to contrast with the dull, brown-red surface of inflammation. In inflammation, again, the diseased portions are preternaturally distended, while in atelectasis they are collapsed and inferior in the healthy texture in volume—but susceptible, providing the disease has not lasted too long. In inflammation the pulmonary texture is softened; in atelectasis it is hard, and the cut surface is not granular, but smooth. When no complications exist, the anatomical characters of a first or third stage of pneumonia are not discoverable in or near the diseased patch; in short, we have nothing like pneumonia except the solid, non-crepitant mass which is likely to be confounded with the second stage of the disease, namely, with red hepatization. While single pulmonary cells have been dilated in the midst of an undeveloped lobule, the absence of softening, and of the peculiar, congested, humid character of its texture, offers a wide difference between it and the first stage of pneumonia. A portion of the lung retaining its fœtal condition allows a little thin, dark, apparently natural blood to escape upon pressure; in the first degree of pneumonia, a quantity of turbid, bloody fluid, mingled with fibrin, and with a few minute air vesicles; in red hepatization, a tenacious, dirty-brown, reddish; in gray hepatization, a large proportion of grayish-yellow, purulent fluid may be expressed. Atelectasis usually affects both lungs; pneumonia is for the most part, confined to one lung. Finally, the secondary pneumonia attendant upon pneumonia, as inflammation of the pleura and of the bronchial mucous membrane, and softening of the bronchial glands, with fibrous concretions within the cavity of the heart—these are wanting in atelectasis. The peculiar character of this fœtal condition of the lungs is only those marked during the first few weeks after birth; subsequently, when, as already stated, ulterior changes take place, it becomes extremely difficult to form an exact diagnosis from mere *cadaveric* inspection. Atelectasis is frequently confounded with pneumonia by some writers on diseases of children, as their publications amply prove; for we find specified under "infantile pneumonia" so much that is peculiar and enigmatical, so many deviations from the same disease in the adult, as to render it obvious that two maladies of quite dissimilar diseases are brought under the same *rubric*. The accounts given of the appearance after death are, in many instances, conclusive as to the justness of the foregoing assertion; and that without reckoning the previous symptomatic relations, namely, the frequent absence of true inflammatory phenomena, the entire want or irregular accession of fever, and the very slender information derived from percussion and auscultation. This perplexing difficulty has many times induced writers to assume a double form of infantile pneumonia. Rilliet and Barthez distinguish an acute and chronic type: the first occurring in children somewhat advanced; the chronic form, on the other hand, assails, for the most part, new-born infants, and agrees, anatomically, very close with atelectasis. Gerhard has shown that atelectasis chiefly concerns children from birth until the age of one year. "Crusi," who properly rejects the idea of atelectasis being a pneumonia or bronchio-pneumonia, met with inflammation of the lungs in young children very readily. Valleix is perplexed by certain incongruities really belonging to atelectasis. The greatest difficulty is to account for the "hepatization" patches, always hardened, instead of softened, and for their cut surface being smooth instead of granular. In the new-born he never met with these secondary results of pneumonia so constant in the adult. Whatever has been encountered of that nature of others, I am inclined to attribute to some other morbific source.

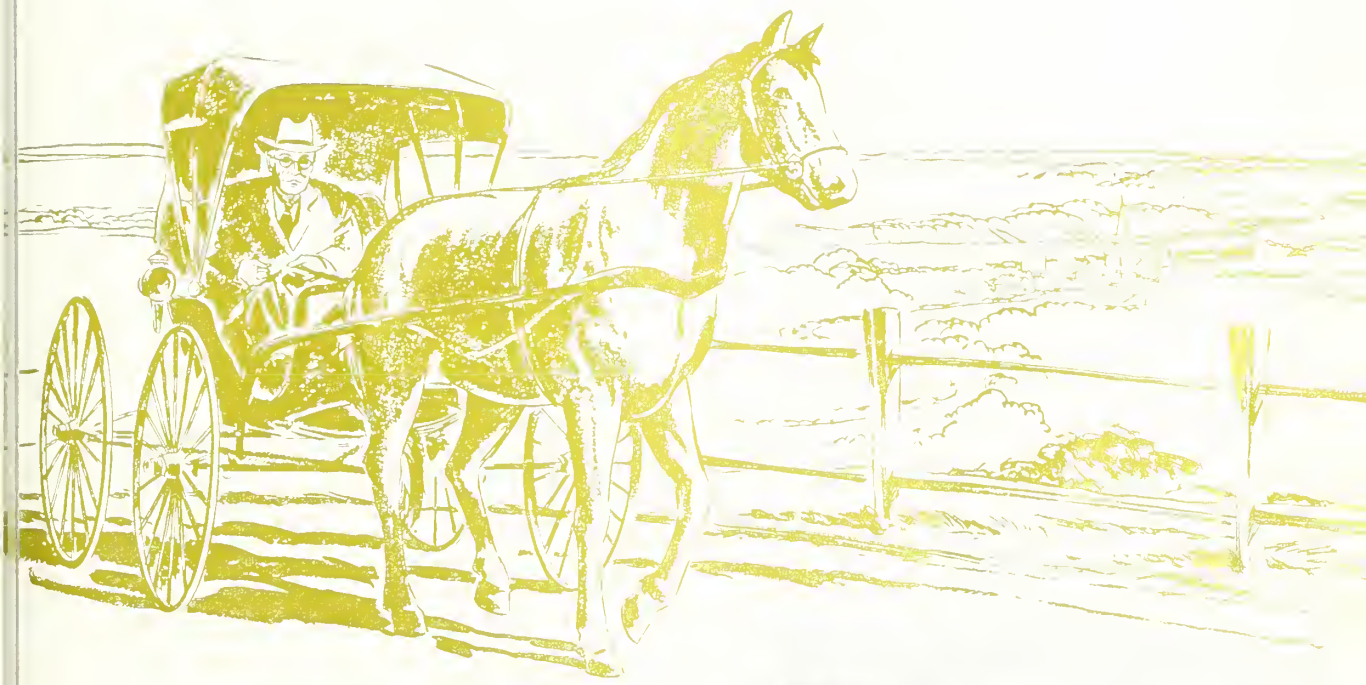
The very manner in which the disease spreads within the lungs is opposed to the course of pneumonia, but, on the other hand, consistent with atelectasis. When death occurs a few days after birth,

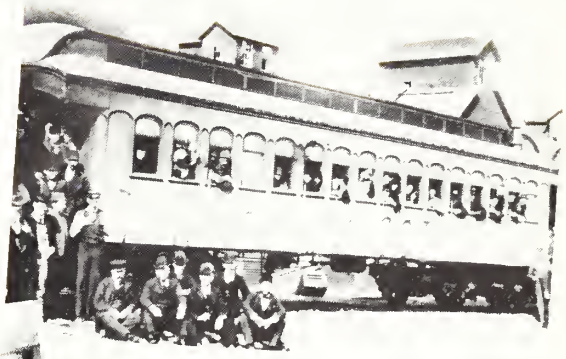
it may be possible that infiltration and inflammation commence "*in utero.*"

In conclusion, I consider myself entitled to draw the following inferences: new-born infants are prone to organic affection of the lungs, altogether distinct from pneumonia, and dependent upon imperfect inspiration after birth, by many confounded with pneumonia, and by Rilliet and Barthez designated as *carnification.*

The greatest number of cases of pulmonary disease occurring in the earliest period of infantile life, and set down as pneumonia, may be regarded as cases of atelectasis. This assertion may be taken with some reserve. Pneumonia will occasionally prevail as an epidemic with new-born children; under these circumstances pneumonia will obtain a numerical preponderance over atelectasis when pneumonia attacks infants in foundling hospitals. (1879)

1880
"The Doctor Builds His Practice"
1900





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State Capitol Building, Topeka. (1888)

Illinois emigrants arriving in Butler County. (1890's)

The famous Dodge City cowboy band. (1886)

Fort Scott, as it appeared in 1886.

Introduction

Kansas is now twenty years old and has a population of nearly a million. The wounds of the Civil War are healed, though the bitter struggle is not forgotten.

Railroads have gone westward and to the south to the point that Kansas has more railroad track than most of the states. Immigration is beginning on a large scale, with Scandinavians, Germans, Russians, Pennsylvania Dutch, and others helping to make another "melting pot." Cowboys have taken possession of Abilene, Dodge City, and other communities as they brought in huge herds of cattle from Texas. Our State Capitol was started in 1866 and will be ready for some occupancy in 1881.

The young state has shown concern for future culture by the establishment of a large number of colleges, a state university, and an agricultural college—the second in the U. S. Several insane asylums are open and have a few patients. Churches are organized in many communities and are thriving.

The buffalo herds will soon be almost exterminated by the ruthless hunting. "Grasshopper invasions" have occurred, and will occur again. Prohibition is soon to become a law of the state (1881).

The Society has passed through the dangerous period of its infancy and begins to stretch, to flex its muscles, and to encounter some "growing pains." Pasteur and Lister have made their monumental and revolutionary contributions in establishing the relationship between bacteria and infection—contributions which will influence so greatly the future of medical practice. Darwin has propounded his theory of evolution.

With this background we see the Kansas physician continue his pioneering as he builds his practice on the sound principles of the day, keeping step with the many advances of the period.

Address of the President

C. C. FURLEY, M.D., Wichita

Coming together at this twenty-first annual convocation of the Kansas Medical Society, I wish to heartily congratulate you upon the long and continued success of our association. We come again to compare notes, with scientific discussion, and to enjoy the friendships and renew the profitable and pleasant acquaintances which probably would not have arisen but for these annual meetings. Our Society, composed as it is entirely of active practitioners of our art, must, by our interchange of views, alike benefit the people and the profession, and at the same time renew the fraternal feeling and cohesion of purpose that must be of service in giving us moral force and influence in all the departments of science and usefulness that properly belong to our profession. I trust that all our deliberations may be conducted in such a way as will conduce to these results.

The advancement of the science of medicine and surgery, to the end that the profession may maintain its prestige of standing in the front rank as the promoters of useful progress, and that the greatest good may be attained for the people of all the earth, is one of the most important objects of this and all kindred associations. Intimately and inseparably connected with it is the duty of throwing around the profession of medicine such safeguards as will protect the people from the evils of quackery, and leave the legitimate field of practice to those who possess the proper professional and moral qualifications. To the latter, the attention of the public, legislatures and courts has of late years been called, and legislation has been had in this State. A short time before our last meeting, a law was passed by the Legislature of this State, governing the practice of medicine, which met with strong opposition, coming chiefly from influences brought to bear by irregular practitioners of medicine, resulting in forcing into the law some matters that could be improved, and of cutting out some that it would have served a better purpose to have kept in.

We have been operating under this law for nearly one year, and while we find in the main it serves the purpose, as a member of this Society I desire to enter my protest against any law creating more than one Board, and which in this State has well-nigh had its object defeated by the cupidity and vileness of one of the Boards created by the law. If this law were properly enforced there ought not, prior to the first of April last, to be found any person in the State practicing medicine, unless duly licensed by one of these Boards, as subsequent to that date the law only recognizes as proper to receive such license, those who have by proper means become possessed of a diploma from a recognized medical college, which is the presumable evidence of the education and scientific training of the holder. The law of the land so protects the financial and property interest of the people, that it will not permit persons to engage in the practice of the law until they shall have passed a competent examination and shown themselves to be of good moral character. It seems more important that the people should be protected from charlatanism in medicine than in law. Let us see that the law we have is properly enforced, and our standing will be advanced.

In the last few weeks an effort has been made to cast a doubt upon the legal existence of the corporate powers of this Society, and an opinion has been procured from a law firm to the effect that the Kansas Medical Society has no legal corporate existence, and had no authority to appoint a Board of Examiners under the law of 1879, and that certificates issued by such Board will not protect the holders of the same from the penalties of the act. This opinion was procured at the instance of the Board, previously mentioned as mercenary, and published at advertisement rates in different papers of the State, as well as in circular form, attached to an advertisement of the "Eclectic Board," calling the attention of the profession in the State to the fact that they, the "Eclectic Board," considered the certificates issued by the Board of Examiners of this Society "invalid in law," and that its Board of Examiners would issue certificates to all who hold certificates from the Board appointed by the Kansas Medical Society, on the payment of five dollars, and, as I understand, in direct violation of the express limitations of the law, which provides that no examination shall be held after the first day of April, 1880.

The written opinion of eminent lawyers has been obtained by the President of the Board of Examiners of the Kansas Medical Society, in which it is unqualifiedly held, that it has a legal corporate existence, and that the certificates issued by its Board of Examiners are legal, and will fully protect the holder.

The whole matter has the look of an unprofessional and unwarrantable attempt to levy blackmail against the members of the regular profession. It is sincerely to be hoped that none will be, and I believe none of the profession have been, gulled by

the trick, and my advice is, that no further notice be taken of the matter.

The sanitary condition of the State is of the greatest importance, and in my judgment this meeting might, with great propriety, take some steps looking to the promotion of this object. A law should be passed by the Legislature of the State, creating a Board of Health for the State, composed of members of the medical profession, chosen with a view to their learning and fitness for the duties to be performed, with one or more lawyers of acknowledged ability, to advise the Board as to all strictly legal questions that may arise in the discharge of their duties. The Board should have power to investigate as to the prevalent general and local causes of disease, as well as those of epidemic and contagious character, and have power to use such means as may be found necessary to prevent the same.

They should especially be required to record correct information of births and deaths, with the causes of the same, which in future years could be referred to as reliable statistical information. They should have authority to take the proper steps to eradicate, as far as possible, the causes of disease, wherever found and of whatever character, and to see that cities and towns, though their local authorities, are kept in proper sanitary condition, making annual reports to the Governor, with such recommendations as they might deem proper. The deathrate of the State, moderate as it is, might thus be materially diminished. I would suggest the propriety of having a committee appointed to take such steps in the matter as may be deemed advisable.

It is important to the profession that it be protected from the blunders of incompetent druggists. At this time an important question is pending before the people of the State, upon the question of temperance reform, which will be voted upon at the November election, and in the event that the proposed constitutional amendment prohibiting the manufacture and sale of intoxicating liquors is adopted, it will in all probability call into existence a large class of druggists whose chief aim will be to evade the letter and spirit of the amendment and all laws passed to carry it into effect, and in whose hands professional prescriptions might be dangerous to the profession and the people. In New York, Illinois and other States, laws have been passed to regulate the sale of drugs and put the business in competent hands, and have been found to serve an excellent purpose.

I therefore recommend that the Society appoint a committee to take into consideration the propriety of presenting to our next Legislature a memorial asking for the enactment of a law regulating the sale of drugs in this State, similar to that of the New York law on the same subject, and also the committee be authorized to take such steps in the matter as may be deemed prudent. (1880)

An Anomalous Bigeminal Pregnancy

GEORGE H. RANDELL, M.D., Easton

On January 25, I was called to attend in labor, Mrs. C. E., colored. Had not seen patient previously. Found a strong, well-built woman, aged about twenty-six years; healthy, and spirits good. Patient gives the following history: Has one child, born two years ago; health has been good during the whole time of gestation; has had no fall or injury of any kind; has been accustomed to ride much in an ordinary farm wagon. Is not and has not been conscious of anything abnormal, except that she thinks she has overrun her time about one month, but of this I can find no evidence, and therefore presume she is mistaken; and that one month ago she experienced what she termed her "turns." This seemed to have been a hemorrhage, small in amount, accompanied with pain, and ceasing spontaneously in two or three days. When I arrived labor-pains had been present twelve or fourteen hours. By digital examination, the os was found well dilated, and the head presenting in the first position. . . . In four hours from my arrival, a well-formed and vigorous female child, weighing about nine pounds, was born. After giving the child the usual care, I made a digital examination with the view to taking care of the placenta. Following up the cord, my fingers came in contact with a hard substance, which proved to be a dead fœtus with the hand presenting. I readily passed my first and second fingers up and around its neck and delivered. This second child was about seven months old, certainly not more than eight; weighed about one-and-a-half pounds; bones of cranium collapsed; body and extremities flabby, and extremities œdematous; decomposing, especially about mouth and nostrils; smell offensive; cord small and flaccid. . . . From the appearance of the dead child, I should be inclined to think it was not more than seven months old; but knowing the difficulty of forming an exact opinion on this head, in the case of a putrefying child, and

taking this uncertainty in connection with the hemorrhage one month before labor, I conclude that probably the hemorrhage marked the time of the fœtal death, or a short time subsequent to it. From this it appears that *a dead child may be carried in utero in company with a living child, without detriment to the latter, for a period of at least one month.* I account for the hemorrhage by regarding it as an abortive attempt of the uterus to empty itself of an offending body, viz., the dead fœtus. (1880)

Report on Anaesthetics

W. W. COCHRANE, M.D., Atchison

Probably the most noted instance of persistent opposition to, and continued denunciation of, a new discovery in medicine has been the heroic warfare waged against anæsthesia. So persistently and arduously have the enemies of progressive medicine expended their talent against this grand achievement of modern therapeusis that they had for thirty years manufactured a skepticism which had retarded its progress, and to a great degree destroyed its practical utility. But they have quietly given up the controversy, acknowledged their failure, and humanity will fervently rejoice, and the practitioner of the future will exult at an accomplishment fraught with so much importance to their success. At the present time there is probably a greater unanimity accorded to the importance of and innocuity of anæsthesia than any other divisional class of therapeutics. The surgeon who would dare to perform an operation of any importance without its use, would find it difficult to ward off disgrace. No report worthy of credence has ever been made of a death from chloroform in obstetrics.

The obstetrician who hesitates to administer it, under any contingency, will inevitably find himself amenable to one of three unpropitious ordeals. He will induce the patient to believe that she has some organic disease, contra-indicating its use; he will incur the imputation that he is timid, and ignorant of its proper mode of administration; or, that he is void of all sympathy for his patient. So generally has it come to be used, that even timid old women have become ashamed to express their fear of it. It is a singular fact that, from the time of its discovery, minor surgical operations have given the greatest mortality, and notwithstanding the regular and rapid increase of its use, the mortality has regularly and rapidly decreased. Statistics show that from 1848 to 1855, there were forty-eight deaths from all anæsthetics; from 1855 to 1862, there were twenty-six deaths; and from 1862 to 1869, there were twenty deaths in all countries. On looking over the *Medical Journal,* I have found but two deaths from this cause recorded for the year 1880. Inasmuch as the journals were wont to publish deaths from chloroform with as much zest as did the daily papers publish murder, we may infer that not many more than these have occurred.

Why this decided decrease in the mortality from this cause, has not been definitely decided. It may possibly be attributed to the combined influence of a purer article used, a better mode of inhalation, and the greater confidence of the subjects.

Anæsthesia may be divided into three classes — artificial, medicinal, natural. Sleep and syncope are of the last, medicinal substances produce the second, and mesmerism analgesia the first. Of the twenty medicinal substances acknowledged to be anæsthetic, but three have been retained for general use; all have been discarded except chloroform, ether, and nitrite of amyle. Ether has been vaunted as harmless, and is used by a few surgeons; chloroform is used almost exclusively in obstetrics and general practice; nitrite of amyle is being spoken of as a limited remedy. Nitrous oxide is used for the purpose of extracting teeth by dentists. Ample thorough clinical facts have been recently given by authority to induce the conclusion that chloroform will, ere long, entirely supersede the use of anodynes, narcotics, nervines, soporifics, sedatives, and anti-spasmodics.

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Recently the subject of mesmerism has been investigated in a more scientific manner than formerly, and from the numerous positive decisions and conclusions on the subject, made by scientists of Germany, France, and America, we may fairly conclude that the opprobrium so long attached to the subject has been removed, and that henceforth the sensible medical man may allude to its use without fear of being considered an enthusiast. At last we are justified in according it a place in medical science as a therapeutic agent.

The fact having been amply verified that profound anæsthesia can be produced without medicine, by manipulation, or from some influence of one person exercised over another person, warrants us in denominating it artificial anæsthesia. Dr. Hammond

says that every man with a will-power can so influence his subject as to produce this anæsthesia. He calls it signosticism. Dr. Beard says it depends upon the susceptibility of the subject, and but few have the power to influence; he calls it hypnotism. There is every reason to believe that the cultivated normal mind, with methodical continued effort, can so influence the abnormal or sick sensitive as to produce, to a greater or less extent, an anæsthetic condition. By experimental study of temperament diathesis and systemic condition, it will ere long be decided definitely who can produce anæsthesia, and who are susceptible of being anæsthetised. When this shall have been decided—the theoretical status matured—practitioners will at once commence experimenting, and will doubtless soon bring this valuable power into practical use.

Analgesia has been recently spoken of as practical. Rapid, forced respiration may produce anæsthesia, whether by oxidation of the blood or by a concentration of the mind on the effort producing a hypnotic condition has not been decided. (1881)

Sanitation of the Sick-Room

JOHN GRASS, M.D., Independence

The subject of Sanitary Science is one which has rapidly grown within the last few years, and one which is claiming the attention it deserves, in proportion as we become acquainted with the causes and preventions of disease. Whatever can cause, or help to cause, discomfort, pain, sickness, death, vice, or crime—and whatever has a tendency to avert, prevent, or diminish such causes—are matters of interest to us as sanitarians. It invites us to so wide a range of thought that its consideration as a whole is impracticable in a paper so brief as this. . . .

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How then can we best guard the sick-room against those sources of infection and contagion which are alike so injurious to the patient and those around him? Every physician should ask himself this question upon entering the sick-room; for what will his efforts in battling against disease avail him if he ignores the source from which it has its origin? Our duties to our patients signify something more than the prescribing of medicines and the application of poultices. We must regard the hygienic surroundings. We must have a proper regard for ventilation, warmth, light, and cleanliness—all at the least possible expenditure of vital power to the patient. First of all these, and without which all the rest you can do is as nothing, is to keep the air your patient breathes as pure as the external air, and at the same time avoid the chilling effects of a draft. Yet what else is so little regarded by those usually in charge of the sick? Even if it is thought of at all, most extraordinary misconceptions are entertained about it. How often are we called to the sick-room when, upon opening the door, the most offensive odors almost stifle us, and yet those in attendance will hasten to close it, for fear the patient will "catch cold." Even in admitting air into the patient's room, few people ever think where the air comes from. It may come from an adjacent room which is as poorly ventilated as the first, or from a hall which is unaired and full of fumes from the cooking; from a sink, a wash-house, a cellar, or, if in the city, from an open sewer; and with this air the patient's room is supposed to be purified—it had better be said poisoned. The question may be asked, when ought windows and doors to be opened? The answer is, when ought they to be closed? Always have plenty of air from without, and that too, from those windows and doors the air comes the freshest and purest. With a proper supply of openings in a room, fresh air is easily secured when your patient is in bed. Avoid a draft of air between two openings, but do not be afraid of open windows. People do not easily take cold in bed. This is a popular fallacy. With proper bed-clothes and hot bottles, if necessary, you can always keep a patient warm in bed, and well ventilate him at the same time. To have the air as pure within as without, it is not necessary to have the room cold, and the condition of the patient and the nature of his ailment must always be taken into consideration in regulating the temperature of the room. To attempt to keep a room warm by keeping it closed, and thus compelling the sick to breathe the poisonous emanations from their own bodies, is a certain way to delay recovery or destroy life.

Another popular fallacy concerning ventilation is the supposed danger from exposure to night air. We will often find a sick-room well opened in the daytime, and carefully closed at night. They do not stop to consider that we can breathe no other air at night but this same dreaded night air. It is only a question of pure night air from without, and foul night air from within, and a proper ventilation is as essential at one time as another. Then, if we are to keep the air within as pure as that from without, it

must not be forgotten that everything in the room which can give off effluvia serves to contaminate the air breathed by the patient. Even in health, persons cannot with impunity repeatedly breathe the air in which they live, on account of the poisonous nature imparted to it by the exhalations from the skin and lungs. In disease, where everything given off from the body is highly noxious and dangerous, not only must there be plenty of ventilation to carry off these poisonous substances, but the secretions from the kidneys and bowels must be instantly removed from the room. Of the poisonous nature of these excreta it would seem unnecessary to speak, were not the proper precautions concerning them so constantly neglected. In typhoid fever, and some other infectious diseases; there is no longer any doubt that the infection can be imparted from the stools of the patient. Then they should not only be removed instantly, but they should be covered over with earth, where there is no danger of contaminating the water supply, and the chamber utensil carefully washed and left to air before it is returned to the room. How often have we found the chamber carefully stowed away under the bed, in order that a stool may be preserved for the doctor's inspection, and then to remove the offensive odor we find them burning paper or a cotton cloth.

Let no one ever depend alone upon fumigations or disinfectants for purifying the air. The offensive substance, not its smell, must be removed. It has been said that most disinfectants are of essential importance in the sick-room. "They make such an abominable smell that we are compelled to open a window and admit the fresh air." But we must remember that no manner of ventilation can freshen and purify the air in a room unless the most scrupulous cleanliness is observed. Dusty carpets, dirty walls, musty curtains and furniture, filthy and poorly-aired bed-clothing will counteract your best efforts at ventilation. For a sick-room, a carpet is perhaps the worst expedient which could by any possibility have been invented. As a repository for catching and retaining the germs of disease, it meets every requirement. A dirty carpet literally infects the room, and when we come to consider the great amount of organic matter which it absorbs from a polluted air, and from the fact of people coming into the room, this is not surprising. A bare floor, well and often cleaned, is preferable in a sick room to the newest, most costly carpet. The walls should be well cleaned, and if of plaster, may be freshened by whitewashing. The furniture should be scanty in the room, so that it may be the more easily dusted and cleaned, and the window curtains should be often changed and aired. A proper care for the bed and bedding of the patient is absolutely indispensable to his well-being and comfort. Without this, the patient will have reintroduced into his system the emanations from himself, which day after day and week after week have saturated his unaired and unchanged bedding. How can it be otherwise? If we consider the amount that an adult person in health exhales from the skin and lungs in twenty-four hours, loaded with poisonous organic matter, and that in sickness the quantity is often greatly increased and is much more noxious, we must know that a large proportion of it is absorbed by the bedding, and there it will remain, unless the bed is properly changed and aired.

The bed and covering should be as light as is consistent with the comfort of the patient, and where it is not utterly impracticable, it should be thoroughly aired every twenty-four hours. . . . This can be best accomplished where you can have two beds at your disposal, and the lifting is done upon a sheet or blanket, which will avoid tiring or exhausting the patient. . . . And this brings us to a consideration of the influence of light upon the sick and enfeebled. The need of light for a patient is only second to a need of fresh air, and after a close room, the next most hurtful thing is a dark room. Of course, in some diseases of the eye, and a few other conditions, light must be forbidden, but whenever this must be continued any length of time, it is always at the expense of the general system. Not only light, but the direct rays of the sun, should pass into the room if possible. While the effect of the sunlight is invigorating and cheering to the patient, directly, it also aids him indirectly, by its purifying effect upon the air. We have all noticed the musty smell given out by a room from which all sunlight has been persistently excluded. If the patient is able to be about the room, great benefit may be experienced by sitting for a while each day where the sunlight will fall directly upon him, and if he is confined to his bed you will find him involuntarily turning his face toward the light, just as a tender house-plant will bend its stem in the same direction.

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It may seem that these matters belong within the province of the nurse rather than the physician, and yet how many of us can testify that in almost every instance a proper sanitation of the sick-room, if left entirely to those in charge, will go undone. Until we can have intelligent nurses, educated for the purpose, we must see to it ourselves that the patient is not poisoned by his own excretions. I have known a number of that school which ignores pathology and delights in high potencies, to gain an enviable reputation by a strict adherence to cleanliness and proper ventilation. It is not because physicians do not know these things that they are not always heeded, but because, in their eagerness to overcome disease, they rely too much on medication alone, and trust

other matters of equally vital importance to the nurse. We cannot afford to stand idly by, waiting for the source of this poisonous stream to go dry. We live in an age peculiarly distinguished by progress, and sanitary science is not far behind in that great advance that is being made all along the line, and the man in our ranks who ignores its teaching had better retire from the field. (1882)

Medical Jurisprudence

HON. J. T. BRADLEY, Topeka

I esteem it a great honor to be invited by the gentlemen composing your Committee of Arrangements to deliver an address before the Kansas Medical Society, upon the subject of Medical Jurisprudence; but that subject is too great for one brief lecture. It is a subject upon which many books have been written; a subject that belongs almost exclusively to your profession. Lawyers do not instruct doctors on medical jurisprudence. Law is a rule of action. Medical law embraces the entire practice of the greatest and deepest of all professions. You have studied the science of surgery and medicine in your colleges, in your books, by actual practice, by hard and sometimes bitter experience. It is a life study. You are called as experts to testify upon the subject, to teach courts and juries what the rule is in certain cases; what such and such symptoms indicate.

Lawyers get a smattering of the science in their colleges. They learn it in actual practice, in criminal cases, in contests of wills, in cases of insanity, in all cases arising out of the relation of the sexes, in questions relating to age, identity, presumption of survivorship, life insurance, and medical testimony.

Physicians are presumed to carefully study the science of medical jurisprudence. Lawyers only study the application of the science to questions arising in courts of law, for medical jurisprudence, as defined by the standard works on that subject, is that science which teaches the application of the practice and principles of medicine to the elucidation and settlement of doubtful questions arising for investigation in courts of law. It consists of a great array of facts gathered from study, from experience. It is a great science, but it admits of no clear, logical arrangement of the topics which comprise it. It is not itself a complete whole, to the production of which all the several parts conspire in a natural order. It consists of many different subjects or topics, mostly isolated, and having with each other few if any intimate connections.

We are not permitted to use any of your standard authorities in the courts. We are not allowed to read those authorities to courts and juries, because they are not written by persons under oath. Our Supreme Court in the famous case of "The State of Kansas *vs.* Baldwin," laid down the rule that medical and scientific books cannot be admitted in evidence to prove the declarations or opinions which they contain; but a witness who is a medical expert is not wholly confined to his personal experience in the treatment of men, but may give his opinions, formed in part from the reading of books prepared by persons of acknowledged ability; and it is not improper for him to give the source of his opinion, and to state that all the writers and authorities on the subject, so far as he knows, support him in that opinion.

That rule seems to be ridiculously technical, that a witness can swear to what he thinks a book tells, but that he can't read from a book. That is the way with most of our law, fine hair-splitting technicalities. There ought to be a postscript at the end of many a rule, saying "Please excuse the reasoning."

Frequently the question is asked by physicians who are called into the courts as witnesses, as experts in difficult cases, if they are not entitled to fees as experts, or in other words, if they can be compelled to testify as to their medical knowledge and experience without some proper compensation, allowance, or fee, more than ordinary witnesses.

The physician in the court room receives no higher compensation than the other witnesses. It is a duty that he owes to society to testify when he is called. It interferes often with his practice, and sometimes seriously discommodes him; but like other witnesses, he is compelled by the law, and for the purpose of determining the truth of a question, to make personal sacrifices.

There is rarely a criminal case tried but what physicians are called in to the trial, and very often their evidence is all-important in deciding a case.

A physician should never take the witness stand in any case without first refreshing his recollection and reëxamining his books. He will find the lawyers on the one side or the other, perhaps on both sides, thoroughly and carefully prepared on that particular case.

Any man—lawyer, judge, or doctor—will sometimes easily become confused by men whose business

it is to confuse; and doctors, like lawyers, will differ, and on matters too that would seem to be settled. In my limited practice I have noticed this often.

. . . . .

As a rule, you are only called into the court room as experts. Your relations to your patients and what you learn from them as such are strictly confidential. The law protects you and it protects them. No physician or surgeon can testify concerning any communication made to him by his patient with reference to any physical or supposed physical disease, or any knowledge obtained by a personal examination of any such patient.

A physician is in law an expert as to all matters embraced within the range of his profession. It is not necessary that they should be graduates of any medical college, or have a license to practice from any medical boards, in order to render them competent to testify as experts in relation to matters connected with their profession. If it is shown that the witness is a practicing physician or surgeon, it is sufficient evidence that he is competent to express an opinion on a medical question. He need not be a specialist; he is supposed to understand all about his profession, just as a lawyer is presumed to know the law—although it is sometimes a very violent presumption. But if he is a specialist, if he has devoted himself exclusively to one branch of his profession and has had no practical experience in that subject-matter to which he is called to testify; as, if an oculist is called to testify as an expert in insanity, his testimony would be inadmissible. And yet the general practitioner might have no experience whatever in cases of insanity.

It needs frankness on the witness stand. If a witness does not understand a subject he had better frankly admit it. It does not hurt him with thinking men. A quack will sometimes easily get punctured by a pettifogger, and a pettifogger by a quack; and the educated people of to-day are not easily humbugged. They can see through a disguise.

Human testimony, the best of it, is like humanity —weak and unreliable. There is constant room for improvement, for advancement in every walk of life.

. . . . .

I will now briefly call your attention to the condition of the statute laws of Kansas on the practice of medicine, or rather to the absence of any such laws.

You have a law passed by the legislature of 1885, creating a State Board of Health, of nine physicians No compensation of any kind is provided. That board can make recommendations as to the condition of public buildings, can register marriages, births and deaths, but can't regulate medical practice. It is wholly ornamental, and nothing useful about it. The only law you have relating to the practice of medicine consists of two little sections in the laws of 1870. It merely provides that any person who has attended two full courses of instruction and graduated in some respectable school of medicine, either in the United States or some foreign country, or any person who can produce a certificate of qualification from some State or county medical society, and is of good moral character, can practice medicine. Also that persons who have practiced for ten years continuously without any certificate may continue to practice, and those who have practiced five years continuously are allowed two years in which to get a certificate.

This is not regulating the practice of medicine. There is no authority here to examine anyone or to test the qualifications of anyone; a certificate from any State or county medical society, a diploma from some cheap and worthless school.

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You have endeavored earnestly to secure appropriate legislation governing and regulating the practice of medicine and surgery in Kansas, and by forming an alliance with the Eclectic and Homeopathic Societies, you succeeded in 1879 in obtaining the passage of a law governing the practice of medicine in Kansas; but it was not very carefully drafted, and was, for technical reasons, declared by the Supreme Court to be unconstitutional.

It could be reënacted with a few changes to adapt it to our constitution, and would then be a very useful and beneficial law. That act was in substance as follows:

It created three boards of medical examiners, each board to be elected annually, one board to be elected by the Kansas Medical Society, one board by the Eclectic Medical Society of Kansas, and one board by the Homeopathic State Medical Society. Each board to consist of seven members. No person could practice medicine or surgery in Kansas without having a certificate from one or the other of these boards. Three ways were provided to secure such certificate:

1. To present a diploma from some medical institute, and to prove by the affidavit of the applicant that he was the lawful possessor of the diploma; that he was the person named therein; that the diploma was obtained in the regular course of medical instruction, and without fraud or misrepresentation of any kind, and that the medical institution granting the diploma had at the time of granting the same a full corps of medical instructors, and was at the time a legally incorporated medical institution, actually and in good faith engaged in the business of

medical education, and in good standing as a medical institution, and that the applicant had complied with all the requirements of such institution. The board had authority to take such further testimony as it might deem proper as to the identity of the person named in the diploma, and as to the manner in which it was obtained, and if it appeared that any fact stated in the affidavit was false, the application for a certificate was to be rejected. No board could entertain an application which had been rejected by either of the other boards, and no rejected application could be renewed until one year after such rejection.

2. Persons who had been practicing medicine continuously in Kansas for five years prior to the passage of the act, were to receive certificates upon proof of such continuous practice.

3. Each board could examine persons not licentiates or graduates, and issue certificates to and admit such persons to practice.

A $5 fee was charged for each application, and a fine of $20 was assessed for presenting a fraudulent certificate, and a fine of from $50 to $500 and imprisonment from thirty days to one year was the penalty for practicing without such certificate.

Filing the certificate or diploma of another, or making a false affidavit, was a felony.

Lists were sent to every county clerk in the State, of persons receiving certificates.

Each physician was to record his certificate in the office of the county clerk in the county where the physician resided.

Each of the three medical societies mentioned in the act of 1879 appointed an examining board, and they commenced operations under the act. Mr. Willard Davis (now deceased) was Attorney General at that time, and he commenced an action of *quo warranto* against the Kansas Medical Society, to test its power, and also to test the constitutionality of the act of 1879. It was claimed by the State in that action that the *charter* of this Society, having been granted by the Territorial Legislature, had expired when the Territory became a State. That it was void because it was perpetual and forever, because there was no time fixed when it should expire. It was also claimed by the State, that the act of 1879 providing for the creation of the Boards of Medical Examiners was unconstitutional; that it was in conflict with section 1 of article 12 of the State constitution, which declares that the Legislature shall pass no special act conferring corporate powers.

The opinion of the Supreme Court was delivered by Chief Justice Horton. He declared the first point was not well taken. He held that the Kansas Medical Society was a live institution; that it was perpetual and immortal, so far as the law could create immortality. But he held that this act of 1879 was unconstitutional; that it conferred special corporate powers on three societies and no others, and was therefore invalid. The court clearly decided in that case that the State had the power to provide for boards authorized to examine persons seeking to be admitted to practice medicine; and that the act would not be invalid if confined to persons, societies, or associations not incorporated.

We have no law in Kansas governing the practice of medicine. There is nothing to prevent or punish quackery or fraud. The science of medicine is the greatest, deepest, most abstruse, complicated and difficult upon the face of the earth. Although as ancient as the oldest of the arts, it is only of late years that you have called the practice of medicine a science. Surgery has long been a complete and perfect science. In medicine and all that appertains to it there have been wonderful developments within a hundred years. And it affects the whole people. It concerns the health, the happiness, the reasoning powers, the lives of all. The physician's office is a more sacred office than that of any priest, no matter how white-robed he may be, or how holy the altar at which he practices.

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. . . It is true that no law will or can make a physician; that requires mind fitness, nerve, thought, sleepless, untiring work. The physician makes himself, but a law could be enacted that would require a thorough course of study, careful preparation and rigid examination, necessitating a certain fitness before permitting the person to practice.

In England a statute gives the body of medical practitioners powers of self-government so far as regards qualifications and training. All duly qualified persons are now registered, and the register is published. Those who are not registered cannot fill certain offices, and cannot sue for their fees. Before this law was passed, physicians could not sue for their fees; they were on the same footing as barristers formerly, the fees being considered as merely honorary, which ought to be paid beforehand, and at all events were not considered a legal debt. This act also punishes quacks by giving power to justices of the peace to punish with fine or imprisonment those who falsely pretend to be or take or use the name of physician or surgeon of any kind or character.

The English statute would be infinitely preferable to no law at all. It would be an easy matter for you to secure reasonable, necessary and appropriate legislation at the next session of the Legislature. The people of the State have confidence in the physicians, they are interested with you in the passage

of a wise law on this subject. Only quacks would oppose such a law.

I said the people had confidence in you. Why, only the other day a carpenter in one of our villages was making a coffin; a friend came along and asked who was dead. The carpenter replied that no one was dead—that he was making the coffin for Mr. Williams. "Why," said the friend, "Williams isn't dead." "No," said the carpenter, "he ain't yet, but the doctors says he will be dead inside of twenty-four hours, and I reckon old Dr. Kellogg knows what kind of medicine he give him." (1888)

Alopecia Prematura

T. J. MILLER, M.D., Cambridge, Ohio

That we are fast becoming a nation of bald-heads, has been asserted by various writers. And that it is more than a mere assertion is probably true, for we have all noticed a greater preponderance of shining pates in an assembly of a certain size *now*, than was to be seen in a corresponding assembly twenty-five years ago. It is not my purpose to consider cases where the loss of hair follows a fever, is due to eczema or syphilis, but only those cases occurring in young persons independently of any specially diseased condition.

I will first answer briefly some of the arguments advanced in support of certain theories that are claimed to be the cause of premature baldness. One writer asserts that mothers are too particular and cleanly, washing the scalp too often, thereby removing the oily secretion that is necessary to nourish the hair, keep it in a healthy condition and maintain its vitality. If this scrupulous cleanliness of the scalp in children is the cause of baldness, then it would necessarily follow that about the same number of either sex would lose their hair; but on the contrary, this misfortune is confined to the male members of the human family. If this was the correct solution, we should show pronounced loss of hair while small children when our heads are subjected to the scrubbing process every day. Unfortunately for the argument, our scalps retain a bountiful supply of nature's covering while we are young, and this loss does not become apparent until we have grown to manhood and daily shampooing is not indulged in by the majority of persons. The beard would also fall out if daily washing with soap and water produced death of the bulb, for there are many men who are shaved every day and the oily secretions completely removed, yet each individual hair retains a good vitality even to old age, and no difference can be seen between the one who shaves every day and the one who never shaves at all.

Another one asserts that not enough washing is done and the scalp is allowed to become filthy, thus causing a loss of hair. Now the same arguments that were used to prove the falsity of too great cleanliness, will serve to prove the falsity of this, also; for instance, children who grow up together and are subject to the same sanitary conditions, the females will retain a luxuriant growth of hair and many of the males become bald; and as only a minority of the males lose their hair, and were filthy alike, hence we must look for another and a better reason. If a dirty scalp is the cause of this loss, then the Indians would go without scalp-locks, and that, too, independent of a foe's scalping-knife. Some say that long and some that short hair is the cause of baldness—two very opposite conditions; but as both will be referred to again, we pass them at present. Another claims that it is constitutional with dyspepsia for the principal cause, and constipated bowels, nervousness, a dirty scalp, wearing night-caps, etc., as adjuncts. I answer this statement by simply asking, why don't women, then, become bald?

I think Fox claims that in women there is a greater amount of adipose between the scalp and skull, acting as a cushion to protect the hair bulbs, while in men this fat is absent, and the scalp draws so tightly to the bone that the pressure causes death of the bulb. There being more fat between the scalp and skull of women than in men, may be an anatomical fact, although I never saw any difference; and then if this was the right theory, we would expect men in all countries and under all circumstances to lose their hair. If I am not mistaken, alopecia prematura is confined to countries where hats are worn and the hair cut short. No Indians become bald (unless scalped), neither do the inhabitants of Asia and Africa, and I believe all those who wear turbans retain a good growth of hair. The most commonly accepted theory is, that the scalp becomes overheated from wearing tight hats, and by reason of this heat the hair-bulbs lose their vitality, die, and the hair falls out; and

when once dead nothing can restore them to life. This is probably the most difficult to answer of all the assigned causes mentioned in this paper. We do not believe this to be the cause, for if it was, we would expect nearly all persons under similar circumstances to become bald; but this is not true, for only a portion of those who wear tight hats lose their hair. Persons who wear open hats in summer and ventilated hats in winter become victims of this misfortune, while others who winter and summer wear warm, unventilated hats, retain a good growth of hair.

It is true that the hair only falls out beneath the hat, and is the great argument in favor of this theory, but if you will examine those heads critically, you will find that in some persons baldness appears over the occiput, while in others the bregma only is denuded, yet both parts are subjected to the same degree of heat. And more than this, every one as soon as he feels his head becoming too hot, automatically, so to speak, raises his head-cover to allow a free circulation of air beneath his hat or cap. The scalp is kept cool by perspiration and radiation just like other parts of the body; and if this were not true, doctors would be kept busy administering to the needs of persons suffering from attacks of sunstroke, heat exhaustion, cerebral congestion, meningitis, mania, and perhaps many other troubles caused by wearing warm, tight-fitting hats. The feet are subjected to greater degrees of heat than the head can possibly be, being incased in a woolen or cotton covering and then a layer of heavy leather, often extending to the knee, and that too in the very hottest weather of summer; yet the hair on the feet and toes never drops out, but retains vitality as long as the person lives. If it is the close and warm covering that causes this loss, would not our feet and toes at an early age lose every vestige of their scanty hirsuteness? We hold an entirely different view from any of those mentioned, that we will describe in as brief a manner as possible. In order to keep any part of the body in a healthy state, that part must receive blood of a proper quantity and quality and have a sufficient nerve supply. The blood may be of good quality and of sufficient quantity to nourish a part, yet if the return of venous blood be hindered, passive congestion results, with lowering of the vitality and diminished nourishment. If pressure is made on an artery diminishing the caliber of vessel, less than the usual amount of blood reaches the part supplied by that particular artery, diminishing nutrition, lowering vitality, and the tissues atrophy from inanition. Or the same result may be brought about by a passive congestion due to an obstructed vein, and the part, from lack of red blood, sinks to a condition far below that of a healthy state. And if the lumen of a vessel be only partially destroyed, enough blood may reach the tissues to enable them to live, but when they have a special function to perform, a lack of nutrition will cause them to cease functionating, yet are well enough fed to retain life. The special function of the hair bulb is to furnish a starting-point for the hair, nourish it and cause it to grow, but as soon as you cut off or lessen its supply of food, the first to suffer is the hair itself, and if nutrition is further hindered the bulb will atrophy although the scalp may receive blood enough to continue it in a fairly healthy condition.

The scalp is nourished by the two occipital and two temporal arteries, the latter dividing into the anterior and posterior temporal. The bregmatic portion is supplied by the anterior temporals, and the posterior temporals and occipitals supply the remainder of the scalp. If a branch of an artery supplying the scalp is wounded, bleeding is easily controlled by pressure applied to the proximal end of the vessel, and moderate compression only is necessary because of the underlying plate of bone. If the flow of blood in a wounded artery is so easily stopped, the lumen in an unwounded one would be as easily occluded. Pressure is produced by the hat being drawn tightly down on the head, and by forcing the blood vessel against the outer table of the skull, diminishing its caliber at the point where the hat comes in contact with it, cuts off the flow of arterial blood to the scalp. If the hat was worn continuously, the hair would drop out much sooner, and also endanger the life of the scalp, but as the pressure is removed at short intervals it takes a long time to cause atrophy of the bulb; but every time this nutrient is diminished for awhile, it grows a little weaker, until finally the mischief is done, atrophy has taken place, and the hairy covering of the scalp disappears. The pressure of the hat may also interfere with the return of venous blood, producing a passive congestion and thus prevent the flow of arterial blood through the capillaries, and by so doing impoverish the scalp and all that pertains to it, even though the arteries may not be greatly compressed. The hat, acting as a tourniquet on the arteries supplying the scalp, is the great immediate cause of premature baldness, but there are other things that play an important role as remote or predisposing causes. Persons who have a large bi-parietal are more likely to become bald than those who have a small bi-parietal diameter of the head. It is the full side head that so easily allows compression of the anterior and posterior temporal arteries. One who has a flat side head may never lose his hair, simply because the hat presses lightly or not at all on the vessels supplying

the entire top of the head, and the occipital branches feed but a small part of the scalp above the point where the hat usually comes in contact with the skin. The stiff, inelastic hat is a great factor as a cause, especially when worn by one who has a full side head, for it will not adapt itself to the outline of the skull, and most likely will make great pressure on the posterior temporal artery; and as that vessel supplies a great area on the top and back part of the head, you will nearly always find that the hair first disappears on that region. The custom of having the hair cut close to the scalp deprives the blood vessel of the protection that a heavy growth of elastic hair would afford, and more easily allows the hat to produce compression; hence we say that short hair is a potent factor in the production of baldness. It is thought that mental work has something to do with producing a loss of this growth, but if it did, women would also become bald; but they do not, so this cannot be the cause. Persons will also become bald who are of unsound mind, provided they wear stiff hats and have a round and full side head. Farmers are not so subject to this calamity as professional men and residents of cities, because the farmers usually wear soft hats, while the stiff and especially the silk hat, is worn by the latter. As we have already stated that long hair affords protection to the arteries, hence we argue that as an aid to prevent the scalp from losing nature's covering, we should avoid having shaved and shingled heads. As a prophylactic measure we should wear thin, soft, light hats, and not draw them tightly to the head; and they adjust themselves more perfectly, making equitable pressure, and do not fit closely at a few points. Stiff and silk hats should be made strictly according to measure, and so constructed that they will pass over the arteries without causing more than a slight compression. In selecting a hat from a ready-made stock, choose one that binds only on the anterior and posterior parts of the head, and one that fits loosely over the location of the arteries supplying the top of the scalp; that is, protect the anterior and posterior branches of the temporal.

The temporal arteries are the principal ones to protect, for the occipital vessels supply such a small area above where the hat comes in contact with the head, that they need scarcely be considered. In fact, we believe that both men and women compress more or less the terminal branches of the occipital arteries. It has become quite fashionable in late years among the younger and unmarried women to have their hair cut short, and we believe that all that is necessary to make women bald is for them to shingle their hair and wear stiff hats; and we will venture the assertion that glistening scalps among women in the course of time (unless they wear wigs) will be no novelty. Many other arguments might be adduced, but we have said enough to show our position on the cause and treatment of alopecia prematura. (1888)

Legal Injustice to the Insane

B. D. EASTMAN, M.D., Topeka

The proposition that an insane person is a sick person, requires no demonstration to this audience. Medical men universally recognize the fact that insanity is a symptom of physical disorder. Such disorder may be easily discernible or it may be so obscure as to baffle demonstration. It may be so general and violent as to involve and overthrow all the vital processes, or it may be so limited and special as not to interfere with the ordinary physical processes or functions.

It is due to the insane that they should have speedy and competent medical treatment, to the end that the powers, both of body and mind may be conserved and restored to healthy action.

The diagnosis of insanity and the proper treatment of mental disorder is a purely medical question. Insanity differs from the ordinary run of bodily diseases, in that the highest mental powers are so deranged and perturbed as to render it exceedingly difficult of satisfactory treatment by the general practitioner in the ordinary home. For this reason it becomes the proper function of the State to provide suitable institutions for the treatment of this disease. Inasmuch, moreover, as the patient's liberty must be curtailed, it is proper that the sending of such patients to the institutions provided for their care, should be controlled by due process of law. It is alike unfortunate and unnecessary however, that the legal steps for the control of the insane, savor so much of criminal procedure. Indeed, the laws as they now exist in this state, work great legal *injustice* to the insane, for the reason that the whole procedure of commitment is tainted with the methods of the criminal courts.

The treatment of the insane is thus made to appear like a penalty for crime, instead of a cure for sickness.

The first English statute providing for special arrest and custody of the insane was enacted in 1744, almost a century and a half ago and was entitled, "An act for apprehending and punishing of disorderly persons," and reads as follows:

"Whereas, there are sometimes persons who, by lunacy or otherwise, are furiously mad, or are so far disordered in their sense that they may be dangerous to be permitted to go abroad; therefore, be it enacted that it shall and may be lawful for any two or more justices of the peace to cause to be apprehended and kept safely locked up in some secure place, and if such justices shall find it necessary, to be there chained, if the last place of legal settlement be in such city, or in any town within such county."

. . . . .

Since that time insanity has come to be better understood. Institutions have been provided for the humane and enlightened curative treatment of those affected with this disorder. In the mother country and in many of our own states the laws relating to the commitment of the insane have been modified and improved. In some of the states it is now well recognized that physicians are the proper persons to decide upon the question of insanity, and that this can be done by medical men more understandingly and skillfully and with less violence to the feelings of the insane and their friends than by any legal tribunal. In our own state however, our laws are sadly behind the times and deprive the unfortunate victims of mental disorder, of that consideration to which they are rightfully entitled. The method of procedure in our state is by action before the Probate Court. The steps in short, are, the filing of information in writing before the Probate Judge charging a party with insanity. The Judge fixes a day for trial and impanels a jury. The person alleged to be insane has a right to be present at the trial; to have counsel and to challenge jurors. Witnesses are summoned and a judicial farce enacted. And this to determine whether a person be sick or not. Fancy a court summoning a jury to decide whether a patient has consumption or dysentery or appendicitis or smallpox or cholera. The utter absurdity of this condition of affairs is apparent.

Very frequently in carrying out this procedure, the person alleged to be insane is arrested by the sheriff and held in his custody before and during the trial. If adjudged insane this sick person is very commonly consigned to the county jail pending the application for admission to the asylum. It may be claimed, indeed it is claimed, by lawyers, that this procedure is necessary to protect the rights of the insane, but to be consistent they should require the same judicial investigation before the physician is authorized to administer a dose of paregoric or the surgeon to open an abscess. The impression made upon the insane by this procedure is that they have been subjected to criminal proceedings. Patients continually talk of having been tried and sentenced to the asylum, and ask for how long a time they were "sent up."

An incidental but very important objection to this method, is that it renders it impossible to move in case of insanity until the disease has become so far advanced as to be apparent to the ordinary layman. Cases of violent acute mania are self evident from the beginning but cases of delusional insanity and of melancholia are oftentimes incapable of demonstration to laymen in early stages. . . .

Efforts have repeatedly been made by the Superintendents of the State Asylums and by the Board of State Charities, to have the laws touching insanity, modified, but so far, without success. The essential elements in a satisfactory law regarding insanity, are that the question of insanity should be decided by competent medical men, and that the courts should perform only notarial functions, by certifying to the genuineness of the papers and the standing of the physicians. Indeed, some method should be adopted by which incompetent physicians should be forbidden to certify to the insanity of any person. Certifying physicians should either be qualified by action of court to act generally in such cases or they should be specially selected by the court as occasion requires. They should visit the patient at his home and after due examination, submit their report to the Judge, who should then act upon it. The patient himself should not be removed from his home until he is taken to the asylum, unless it be a case of such violence as to render his removal necessary, and when taken to the asylum, it should be by his friends or his physician, instead of by the sheriff or his deputy.

It is unnecessary at this time to quote the laws of the different states or even to lay before you the text of such a law as would be desirable for our own state. In conclusion however, I submit that our present law works an injustice to the insane; that the diagnosis of insanity and the selection of the best place and method of treating this disease are medical questions which ought to be considered and decided by medical men with only such judicial supervision as will guard against fraud and error; and that the whole proceedings in case of insanity, including the removal to the asylum should be upon the basis that the insane person is a sick person who is to be taken to the hospital for the treatment of his malady. (1893)

Difficulties Encountered in Abdominal and Pelvic Surgery—How to Overcome Them

A. H. CORDIER, M.D., Kansas City

The reports in our medical journals of the vast number of successful cases of abdominal and pelvic surgery, by skilled and experienced operators, have been the means of producing much harm and causing the death of many patients. The difficulties encountered in performing this class of surgery are too often underestimated and the danger too little dwelt upon by writers.

It seems simple and easy to many to do this class of surgery. This opinion is often engendered by a want of acquaintanceship with the technique necessary to insure success, and by the absence of practical experience, gained only by prolonged, painstaking, personal work, or learned at the operating-table of a master of this special branch of surgery. The surgery of the abdomen and pelvis demands special precautions in its performance to obtain the best results and to insure the lowest rate of mortality.

An improperly introduced stitch may lead to dangerous complications, or even death.

My object in writing this paper is to lay stress upon the dangers attending intra-peritoneal operations, owing to the frequency with which unlooked-for and dangerous complications arise during the operation and accidents liable to occur during convalescence. The qualifications of the abdominal surgeon should be such as to fit him to quickly devise safe methods to meet any unlooked-for complications. He may start out to remove an ovarian cystoma, and finish with a ligature around the vessels leading to the kidney, and hold in his hands a large sarcomatous kidney as the pathological specimen. He may start out to remove the vermiform appendix and finish with the gall bladder stitched in the parietal wound. These are errors in diagnosis, it is true, but the same mistakes have been made by the greatest men living. It is the uncertainties and surprises that make the abdominal surgeon constantly on the alert for "stumbling blocks." It is these obstacles and knowing how to overcome them at a moment's notice that make abdominal surgery a specialty. The surgical literature and field is too large to be all grasped at once. . . .

To insure the greatest success in abdominal surgery, the operator should have a good assistant and an experienced anesthetizer.

One of the greatest dangers (and at the same time obstacles) the abdominal surgeon meets is dirt; yet it is one to be overcome if proper precautions are strictly and intelligently carried out. A great surgeon has truly said: "Cleanliness is our most expensive luxury." It costs money and time to be surgically clean, but it is a wise expenditure of the former and an intelligent use of the latter.

It is not the dirt or microbes floating in the atmosphere that we have to combat. Some surgeons, laboring under this delusion, try to purify the air before it enters the operating-room, while they at the same time continue operating with enough dirt under the finger-nails to make a brick. Cleanliness is the keynote to use as a successful prophylactic to infection and peritonitis in abdominal surgery.

. . . . .

"Chronic surgery" with indecisive action will be an expensive expenditure of time and bring bad results.

The omentum is often found adherent to the wall of an intestine, this portion of the gut getting the greater part of its blood supply from the vessels in the omentum. Here great care should be exercised in ligating the adhesions, for fear of cutting off too much of the intestinal blood supply and producing a gangrenous condition of the gut at the site of the adhesion. A small intestinal diverticulum may be prolonged into an omental or other adhesion and get included in the ligature—a fatal complication if not recognized at the time of the operation. The apposed mucous membranes will not unite.

Where large omental adhesions have been ligated during the performance of an abdominal operation the stump may become infected, either during the operation or from the use of impure ligatures. This, occurring after an operation, may be taken for a fecal impaction; if occurring early, an imprisoned collection of extravasated blood may be suspected. This condition is attended with a rise of temperature, vomiting, local pain, tenderness, and firm, hard, immovable induration. *Use nothing but pure ligatures.* If this condition has developed, treat it as you would a localized pus collection in any other part of the body—incision and drainage. This mass will be found attached to the parietal walls in most instances, and can be easily and safely opened and drained. Fecal accumulation should not be allowed to occur after an abdominal operation. When they do occur, they are usually found in the sigmoid or rectum, and are easily removed.

In removing or "hulling out" an ovarian abscess containing a large collection of pus, the sac is often

In The Era Of "The Elegant Eighties"

Covered bridge at Springdale, over Stranger Creek.

First livestock train on Rock Island R.R. Caldwell to Chicago, 1887.

K. U. Basketball team, 1898-99. Dr. James Naismith, far right, back row.

Trail herd enroute from New Mexico to Sterling, 1890's.

Front Street, Dodge City, 1880's.

—And The Decade Of "The Gay Nineties"

Stone fence posts, Ness County.

Bicycle club at Dodge City, 1892.

Rock Island train waiting for the opening of The Cherokee Strip, 1893.

Croquet game, Clay Center, 1890's.

Emporia baseball team, champions of Kansas, 1894.

ruptured and its contents spilt into the peritoneal cavity. This is an unfortunate accident, and calls for large quantities of hot sterilized water, used with the irrigator, followed by the intelligent use of the drainage-tube. This same rule applies to all liquids escaping from cysts within the peritoneum. The most harmless looking fluid may be laden with the most virulent poison and quickly kill the patient from sepsis or a diffused peritonitis, if the peritoneum is not left clean and dry. *When in doubt, drain.*

A ureter may be divided while doing a vaginal hysterectomy, or even while removing large abdominal growths. If this accident has occurred, an effort should be made to approximate the divided ends by fine silk sutures, or the distal end of the proximal piece may be turned into the bladder, as has been done a few times successfully.

. . . Many deaths reported as due to shock are fatal concealed hemorrhages. If you anticipate a hemorrhage after an operation, introduce a drainage-tube and watch closely for the first twelve hours; if no bleeding has taken place at the end of twenty-four hours, remove the tube. If a hemorrhage is going on, as indicated by the blood in the tube, keep the pelvis dry by frequent aspiration with the long-nozzle piston syringe through the tube. The dryer the pelvis is left after an abdominal operation, the less likely you are to have bleeding. If the aspiration of the tube does not stop the hemorrhage and the patient shows indications of profound anemia, cut the stitches while the patient is anesthetized and seek the source of the bleeding under strict antiseptic precautions. . . .

In removing suppurating dermoids or ovarian abscesses the cysts will often unavoidably be ruptured and their virulent contents in part be emptied into the abdomen. Many "pus patients" seem to have acquired an immunity or tolerance of septic material, and will often get along nicely after an operation in which pus has escaped into the peritoneum, even when it is impossible to cleanse every particle of septic material from the cavity. Large hot-water flushing with sterilized water and a drainage-tube will save the majority of these cases.

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Every abdominal case is an individual one. Of course certain general rules are applicable to most cases. Painstaking care should be exercised in examining every case. If the surgeon assumes the responsibility (he should) for his surgical work, he must certainly arrive at his own conclusions as to what is necessary to be done and how it shall be performed. In a great majority of instances the diagnosis made by the general practitioner is a correct one, but a recognition of this fact should not deter the consulting surgeon from making a most critical survey of the case before resorting to operative procedure.

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Deductions

1. Abdominal surgery is a special class of surgery.
2. The difficulties encountered in doing this class of surgery are many and hazardous.
3. In the majority of instances, with proper precautions, careful and painstaking endeavors, these may be safely overcome.
4. Where it is possible, a positive diagnosis should be made; yet, in doubtful cases, operate if symptoms indicate the necessity for operative procedure, but be prepared to meet any unlooked-for complication.
5. Accidental wounds of the intestines, bladder and other viscera essential to life must be properly repaired, to insure a successful termination of the case.
6. No rough, unsurgical manipulation of healthy organs should be indulged in.
7. Healthful surroundings, a clean patient, clean instruments, clean nurses and assistants, with a skilled, surgically pure surgeon are essentials to a low rate of mortality and complete recovery in abdominal operations.
8. The aseptic treatment of abdominal wounds made by the surgeon should begin in the laundry. Towels, aprons and dressings are too often responsible for the death of a patient. (1893)

From the Proceedings, 1895

Dr. W. B. Mead offered the following resolution which was unanimously adopted:

Resolved, That it is the sense of the Kansas Medical Society in regular session assembled, that a National Health Department be created with the power and dignity of a Cabinet Officer; that the safety and health of the people is of supreme importance, and the establishment of such a department is demanded by nineteenth century progress.

Gynecology and Obstetrics—Chairman's Address

J. W. FELTY, M.D., Abilene

The progress in gynecology during the past year has been in perfect harmony with its previously attained record. You have listened to carefully prepared résumés from year to year, and, if you will pardon an apparent digression from this custom, I shall reverse the order of tactics, and, instead of pointing out what great things this section has done, I believe it equally important to know what great things it did not accomplish, or what mistakes we have made.

There is an inherent weakness in human nature that makes us more prone to account for our successes than our failure, and the results of our work thereby become only an incomplete guide to future generations. Medical journals are teeming with brilliant results; the tyros in gynecology are vying with each other for records; the abdominal surgeon is counting his sections by the score, and the general practitioner is looking upon the results with awe, and inquires whether he had not lost the opportunity of his life by not making ovariotomies and performing hysterectomies.

There is an operative fever in gynecology which has been more or less epidemic in this country, and I believe, like all fevers, it has had a purifying influence—an awakening influence, both to the profession and the public in general. Nor would I endeavor, in the least, to stop the good work, but I would like to see a united effort to hear of the failures as well as successes. In looking over gynecological literature in medical journals, one would surmise that the mortality is *nil*. County, district, State, and even national associations show little in their proceedings except the uniform successes, and particularly is that true in the gynecological work. Those of us who have done any abdominal work know that there is a mortality even among the most expert, and among the novices the mortality increases in a frightful ratio as the skill decreases. What a picture the other side—the failure side—will produce, and it requires as close a study as the successful side! Every member enlisted in this section would be at hand to hear a paper read on "The Errors I Have Made in My Gynecological and Obstetrical Work."

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In a recent article by Goodell, he says: "In the treatment of the diseases of women at the present time there seems to me to be a tendency to lay too much stress upon lesions of the reproductive organs. Too little heed is, therefore, given to the nerve element of women's diseases, and, as a natural sequence, the surgical feelers and antennæ of the medical profession, always too keenly sensitive, vibrate vehemently at the approach of an ailing woman. This trend of the profession, to appeal to the knife as the great panacea for woman's diseases, is seen everywhere. It prevails alike in city, town, village and hamlet. It asserts itself in every medical discussion, and stands out in bold relief upon the pages of every medical journal. It has caused many needless sexual mutilations and unnecessary operations, and it is, in my opinion, the great medical error of the day." . . . There are, I am certain, in all our State insane asylums, women who have been incarcerated for incurable madness who are carrying pools of pus in their pelves. I make this statement with very little fear of contradiction, for it has been repeatedly demonstrated wherever it has been properly investigated. . . .

In a paper read before this section at Fort Scott, two years ago, I then alluded to a patient upon whom I had operated for lacerated perineum and cervix to remove a long train of nervous symptoms and much physical pain referable to the reproductive organs. I must quote from this article to further illustrate the point in question. This patient was first operated upon for lacerated perineum and cervix. Getting no better, she went to Chicago to a specialist, who again repaired the perineum and amputated the cervix. But her nervous symptoms remained the same. He operated on her for hemorrhoids and removed the coccyx. But her nervous symptoms remained unchanged. But the end is not yet. The orificial surgeon, the harbinger of peace and rest, announces with triumphant victory the panacea for all woman's ills, and he finds a cicatrix in the stump of an amputated cervix and a sphincter ani muscle which must be dilated. But even now she does not "sleep the sleep that knows no waking," but she still retains the same nervous phenomena, only much aggravated by much useless, poor and bungling surgery, and a victim of misplaced confidence. She has since become an opium fiend—a glowing monument to our modern gynecology!

. . . . .

It behooves me at this point to give my respects to a much abused instrument in the hands of the general practitioner—I mean the uterine dilator. This instrument should not be in the hands of any practitioner who is unable to make a proper diagnosis, for in cases of latent intra-pelvic inflammation or ad-

lesions it becomes an instrument of torture and great destruction. It has absolutely no use in cases with a previous history of pelvic inflammation. The full value of the remarks on this point will hardly be fully appreciated except by those who have been called to the bedside of women who suffer from attacks of peritonitis from leaking pus-tubes and old pelvic abscesses. A few months ago I saw a case of supposed typhoid fever, which developed after a rapid dilatation, and would add for the benefit of my younger fellows that if they be observant that "typhoid fever" cases are a very common sequelæ of dilatation of the cervix in certain cases of pelvic diseases. Let us see for a moment the nature of this so-called "fever." The case perhaps is one of dysmenorrhœa, due not to stenosis, but to ovarian or tubal disease caused by placental debris from a previous miscarriage, from indiscriminate use of intra-uterine caustic applications, and improper drainage. An old fire which has been smothered—a latent inflammation is again converted into an active one; the tubes, being a chain of abscesses with broken down caseous walls, are easily ruptured and a leaking of pus into the abdominal cavity at once takes place. We now have a case of so-called "typhoid fever," or an acute "pelvic cellulitis," but, in truth, a pelvic, nay too often, a general peritonitis and death. If you will observe, these same patients seem to have frequent relapses, and, indeed, seem to be extraordinarily susceptible to "typhoid fever."

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So much is said from year to year on the subject of cleanliness that it might appear commonplace and useless for me to say one word about it. I have no apology to make, however, and must add a few remarks. The lessons in cleanliness have not been thoroughly learned or their importance properly appreciated in gynecological and obstetrical work, and particularly the private lying-in work. Some eight or nine months ago I was hurriedly called to the country to assist a physician in a complicated case of labor. It was a case that required version, and which had been attempted, but failed. The surroundings of the lying-in room were not the most inviting. He insisted that I should relieve him and deliver her if I could. The scene was a gruesome one, but believe me, it was shockingly painful—yes, murderous, when I saw his well-filled dirty finger nails. How any man, in this age of science and preventive medicine, can excuse himself is beyond my comprehension. Charles Lamb while playing at cards with a companion once said: "If dirt were trumps you would have a full hand." This witticism is only too applicable to many who are entrusted with the lives of those who pass through the most sacred function of womanhood—childbirth. (1894)

Section of Ophthalmology and Rhinology—Ophthalmia Neonatorum

JOHN E. MINNEY, M.D., Topeka

This disease is usually caused by the urethral discharge of the mother getting into the child's eye during its passage through the maternal canal, and develops within from two to eight days after birth. While this is the rule of its causation, there are occasional cases in which the cause is from the irritable secretions of the parturient canal. An illustration of the irritability of mucous secretion is seen in the nose and lips of children being reddened and inflamed by these catarrhal secretions from the nostrils.

The disease is not common in the country, but is found mostly in the cities, in foundling asylums and amongst the immoral classes.

It is an acute, infectious, specific disease, having a stage of invasion and development, and is self-limited.

During fœtal life the eyelids are held together by the sticky parturient secretions. Immediately after birth these secretions are washed away and the eyes are opened. In many cases the change of conditions and the exposure to wind and light, and possibly smoke and dirt and poor ventilation, causes the mucous membrane and the glands of the eye to secrete freely, and the eyelids remain more or less agglutinated and they become thickened and the conjunctiva reddened. In this condition careful cleansing with clean, warm water or a weak boric acid solution is all that is necessary. In some of these cases a follicular conjunctivitis develops, and, while it is not dangerous, it is persistent.

The eyes continue to water, the mucous membrane becomes thickened, although there may be but little if any reddening of the ocular conjunctiva. A hot saturated solution of boric acid freely applied two or three times in the twenty-four hours, or a two to five grain solution of nitrate of silver, or glycerine and tannin, forty grains of the latter to one ounce of the former, applied once a day, is generally sufficient. The gonorrhœal ophthalmia of infancy is what is commonly called ophthalmia neonatorum and varies in severity.

The usual symptoms are free secretions, soon changing to a yellow, thick discharge, with swelling of the lids with reddened and thickened conjunctiva.

. . . Prophylaxis is what concerns us as much as treatment. Where one eye is involved the other eye should be protected by bandaging or adhesive plasters or a watch crystal.

But by prophylaxis is understood the prevention of the disease. In suspicious cases the vagina should be thoroughly irrigated by several gallons of warm water, and, if you feel safer, add some bichloride one to ten thousand. If the mother is under observation for several days previous to confinement it is not necessary to use so much water at one sitting, but the canal should be washed three or four times a day.

In Kansas the disease is not so common as in the Eastern States, especially in the large cities, and it is much more common in the cities of Europe.

During my experience of nine years in Topeka I have treated some twenty cases. A large per cent of them were not seen until serious injury had resulted, and in not one case, when seen early, has there been loss of sight of either eye, but in the number of cases seen blindness resulted in one or both eyes of half the number.

The statistics given by Haussman of the inmates of blind asylums made blind by this disease was: In Copenhagen, 8 per cent; Berlin, 20 per cent; Vienna, 30 per cent; and in Paris, among 208 blind, young subjects, 45 per cent. In 1876, among the young persons admitted to the blind institutions of Germany and Austria, 33 per cent had been made blind by this disease.

In different countries the variation was from 20 per cent to 79 per cent. In Philadelphia, in 1871, out of 167 inmates of the blind asylum, about 20 per cent had been admitted for this cause.

Since prophylactic measures have been resorted to in lying-in hospitals it had the effect of reducing this number from 12 per cent to 3 per cent in Halle, and in Leipsig, where Crede used his own method, the cases fell from 7.5 per cent to 0.5 per cent. The treatment consisted in putting a single drop of a 2 per cent solution (gr. x to ℥ j of water) of nitrate of silver between the lids of each eye. Practically the same results have obtained in the United States. In the 158 inmates of the Berkeley Institute, California, of 36 cases of binocular blindness 25 per cent was caused by blennorrhœa neonatorum.

Howe found that while from 1870 to 1880 the population of the United States had increased 30 per cent, the number of cases had increased 140 per cent, the number decreasing from the East to the West, but increasing from the North to the South.

I would suggest that a committee be appointed by the chair to obtain information, and if, in its judgment, it is justifiable, it be authorized in the name of this Society to present the facts to the next Legislature and recommend the passage of a law similar to that of Ohio. (1894)

Medical Legislation A.D. 1895

G. A. WALL, M.D., Topeka

The title of my papers, as you will see later on, covers a multitude of sins and their exposé. The intent is to denounce only a few personally, and merely to show the regular profession of Kansas what was done by the committee, or better, some of the committee, for medical legislation during the last Legislature and how it was defeated. I do not desire that anyone shall feel that he has been unfairly dealt with, so I will avoid personal allusions, although I have good grounds to make them, and circumstantial evidence which would certainly criminate some prominent physicians in being instrumental in defeating the law. For the sake of harmony and good feeling, I deem it best that no names be mentioned in this short story of a much abused medical bill, and ditto committee. I intend to avoid all reasons why a medical bill is needed, because that ground has been gone over so often that it is now a tiresome story, but I expect to give as brief and full an account of the actions of the committee as possible, showing what obstacles were encountered and the abuse heaped upon the regular profession of Kansas by the various quacks and pathies.

. . . In order that you may all see the amount of hard work that was done by the committee and that you may lay the blame for defeat where it justly belongs, I desire to start with the meeting of physicians held on May 15, 1894, in this city. As you know that on that date physicians of all schools met in Topeka to adopt a suitable medical bill. When we met, our present Secretary of the State Board of Health had copies of the Illinois law printed and brought before the meeting. After a somewhat lengthy discussion this was the bill agreed upon by the body, subject to some changes, which were to be made, if necessary, by the Legislative Committee appointed by the Chairman (Dr. C. H. Guibor). This committee consisted of nine members, three from each school. After the meeting adjourned, printed circulars were sent to all the physicians in Kansas, setting forth what was done at this meeting and earnestly requesting their hearty cooperation in support of the measure. We also asked

for financial aid, but I am grieved to say the physicians did not have very great faith in our integrity, for the amount received did not permit of the committee indulging in any extravagant champagne supper. The amount received to aid medical legislation was $100, which was expended as follows: To Dr. Dykes, for postage, etc., $53; to D. W. Mulvane, attorney fees, $40; to *State Journal*, for printing, $7. It was now drawing close to the beginning of the Legislature and the committee of nine was found too cumbersome, so in November a meeting was called and a subcommittee of three was appointed by the Chairman, Dr. Guibor, consisting of Dr. C. F. Menninger of the homeopathic school, the writer from the regular and, last but not least, Dr. J. L. Furber of the eclectic, who, at the May meeting, was greatly in favor of stringent legislation and fought so vigorously for it before that body that many of us who had known him were greatly elated to think that he had reformed, but we found that it was only a trance from which he very soon recovered, as evidenced by his actions later on.

The bill was now in the hands of the subcommittee for final revision. We submitted it to legal advice and found that it would have been unconstitutional under our Constitution as adopted, while the same is not true in Illinois where the law is now in active operation. I desire to say that only such changes were made in the proposed bill by the attorneys as would make it conform to our Constitution and save it should the courts be called to pass upon it; the text remained exactly the same as the one adopted at the meeting. The bill was then submitted to Dr. C. F. Menninger for his approval, which he gave, but we did not consult Dr. Furber because he said the bill on the statute books was good enough for him—what a wondrous change of opinion! Later on the doctor changed his front again, as I will show by his connection with another meeting. During the week or ten days before the meeting of the Legislature Dr. C. H. Guibor and myself spent many nights in Copeland County getting acquainted with the various members of the Legislature and endeavoring to obtain as favorable a House Committee as possible. Through the kindness of Mr. Speaker Lobdell we were permitted to suggest the names of a number of gentlemen, any of whom would be agreeable to the physicians of Kansas. I desire to say here that Mr. Lobdell was heartily in favor of a good medical law. Shortly after the Legislature convened the following gentlemen were named on the Committee of Hygiene and Public Health, viz: J. A. Campbell, Doniphan County, Chairman; Dr. George W. Hallenbeak (Rep.), Gray County; Dr. J. S. Halliday (Rep.), Comanche County; Dr. Frank H. Smith (Dem.-Pop.), Sherman County; Geo. W. McKinney (Pop.), Mitchell County; Alfred Pratt (Rep.), Hamilton County; G. G. Cornell (Rep.), Waubaunsee County. Before the committee was named Mr. Cornell was heartily in favor of a medical law; in fact said ours was not strong enough, but for some unknown reason he declined to sign the committee report and also voted against the bill on final passage. The Senate Committee being a standing one, there was no change in the personnel from the previous session. Its members were: Dr. E. T. Metcalf (Rep.), Chairman, Anderson County; D. McTaggart (Rep.), Montgomery County; Levi Dumbald (Pop.), Lyons County; A. E. True (Pop.), Waubaunsee County; John Armstrong (Pop.), Barton County. The majority of this committee, as you see, were Populists. We appeared before them once and then became thoroughly satisfied that our labors before them would be in vain. They would not listen to any argument, but insisted on saying, "Just put me down against the bill," claiming it was class legislation and the people did not ask for it. On February 4, 1895, a joint meeting of the Senate and House committees was held in the Lieutenant Governor's room to hear all arguments for and against the bill. The medical profession at large was represented by Dr. C. H. Guibor and myself, other physicians having been invited but failed to come. The opposition, led by F. P. Baker and T. E. Bowman, consisted of Christian Scientists, Clairvoyants, Spiritualists, Mind-healers, Vitopathists (whatever they are); the Homeopathists represented by Dr. Eva Harding, and the Eclectics represented by the dignified and irrepressible Dr. Furber. It was before this meeting that the doctor had an amendment to the old law, which he desired and insisted should be adopted if any law was to be passed. His reasons therefor I fail to understand, because he did not fall within its scope. I was unable to obtain a copy of the amendment, but indistinctly remember the sense of same; it was somewhat as follows:

Be it enacted, etc.—Sec. 1. Whoever shall remove the ovaries of a young girl under 40 years of age shall, if found guilty, be fined in the sum of $500 and sentenced to the penitentiary for fifty years.

Sec. 2. Whoever shall remove one or both testicles from a youth under 45 years of age, or any time before the menopause, shall, if found guilty, be fined in the sum of $1,000 and sentenced to the penitentiary for fifty years.

But the main argument of the evening against medical legislation was made by Bro. T. E. Bowman, who was selected by Bro. F. P. Baker as the organ of the opposition. He read a lengthy, well prepared and I may say very able address of its kind. It consisted mainly in denunciations and villifications of the regular school, classing them as drunkards, opium eaters and instigators of the liquor habit among the people. The medical bill he denounced as a trust, or an attempt to form a monopoly, by which we could rob the "dear people." Of course Mr. Bowman does not believe in monopolies, but I am sure that when the

rate of interest is endangered he becomes greatly excited. I wonder if he thinks about the "dear people" when they are compelled to borrow? But, pardon me, I am transgressing. The most amusing part of this meeting was the forced union of the various pathies in their endeavor not to tread on one another's toes and still remain united in the villification of the regular school. The weight of their argument before the committee may best be judged by stating the fact that all the members of the Conference Committee present that night voted for the bill, thus refuting the statement that F. P. Baker defeated the bill. I am convinced that the bill met its defeat at the hands of a certain medicine company, whose headquarters are Keokuk, Iowa, assisted by pretended friends of the measure. This medicine company, known as the Baker Medicine Company, I believe, have been and are now selling medicine from wagons in Kansas. They objected strenuously to section 10, which related to itinerant vendors of drugs, nostrums, etc. They are well aware that the passage of that act would decrease their income many thousands of dollars per year. I am informed by an old schoolmate of Eugene Baker's, that they started in some years ago on a small scale, but have become very wealthy. They stated to a gentleman in Topeka that they had forty wagons traveling in Kansas and would be willing to pay $75 per annum for each wagon, $3,000 per year—quite a good license you see. But the committee were under obligations to put that bill before the Legislature without such a radical change, for in the bill the license was placed at $100 per month. After it was in the hands of the committee we could suggest such changes as we thought best. It was introduced in the House on this basis, but it was changed before it went before the Senate by parties to whom it was intrusted to be introduced. As soon as the bill was adopted at the May meeting this firm was notified of the fact by letter, and during the early days of the session a representative of that firm remained in Topeka at the Copeland Hotel, where it was possible to interview the members. I am also informed that a certain amount of money was demanded of him by parties (not members of the Legislature) to defeat section 10, and these were deeply interested in the adoption of the Illinois law, where this clause remains in force. I am likewise informed that members of the Legislature were invited to visit a certain office to meet either Mr. Baker or his representative. This is hearsay, but subsequent events lead me to believe that they were true as they came to me through intimate friends of the bill. I am again informed that Mr. Baker thinks, since the Legislature adjourned, that he was buncoed. As I said above subsequent events lead me to believe that these stories were not groundless, because when members of the Legislature were approached regarding the bill, their first query was, "Does the bill shut out these medicine vendors who sell medicine from wagons throughout the State? If it does I am opposed to it." How solicitous these gentlemen were for the welfare of a firm which does not spend one cent of money in Kansas and on the other hand takes out thousands of dollars a year. How peculiar that these legislators so quickly picked out what was objectionable in the bill. Their attention may have been called to this section by some agent of this medicine company. Even some of our prominent physicians in the State objected to this section and asked that it be cut out, in fact did modify it according to the wishes of this medicine company, and so introduced it in the Senate.

Query: Why should any physician who had the good of the profession at heart desire that such vendors should still be permitted to sell their nostrums to the dear people of Kansas? It would seem to one that perhaps some very great moral suasion was used in their behalf. Be that as it may I leave this to your individual judgment and decision. From the change of side of some of the Populist Senators it was evident that some force was at work to defeat the bill if section 10 was left in. So after due consideration and for the welfare of the bill we decided to modify it so it would meet the approval of these opponents, who were all anxious, or appeared so, to shut out quack doctors, but would not consent to keeping out itinerant vendors. We changed section 10 to read, "Any itinerant doctor who shall open up a transient office, etc., shall pay $100.00 per month, etc." We now supposed the bill would meet with no more antagonism, but we were sadly mistaken. The House committee made the change at our suggestion, but the Populist members of the Senate committee could not see their way clear to do so and killed the bill without consideration. We almost got down on our knees and implored them to at least report the bill back to the Senate and let it take its place on the calendar, but they would not do so. Dr. E. T. Metcalf, the Chairman, filed a protest against the majority report, and said report appears on the Senate journal. We now saw that medical legislation was killed, but we desired to place the parties on record by their votes, so by hard work and constant attention we succeeded in getting the bill on final passage in the House on Saturday, March 2, 1895, by the following vote:

. . . . .

After the passage of the bill in the House it was at once messaged to the Senate. Under the rules a bill to go on third reading without taking its regular course, requires unanimous consent. When this was asked for by Dr. E. T. Metcalf, Senator Cooke (Pop.) objected, and we then felt that it would die on the calendar, but later Senator Metcalf made another attempt and succeeded in having it placed on third reading. When the bill was called Senator Householder moved that it be stricken from the calendar, which motion prevailed. All the Populists except Senator True voting for it, and the Republicans and Democrats against the

motion. To Senator Metcalf is due the entire credit of getting the bill to a vote in the Senate, and had it not been for either the narrow-mindedness or other reasons of the Populist majority the bill would at least have been treated fairly by its being read and discussed and killed on its merits or demerits. But notwithstanding the earnest imploring and eloquent appeal of Dr. Metcalf to the Senate to at least read the bill and see what important changes had been made, they refused to do so. They had not forgotten the promises made early in the session. It was said by a physician before the State Board of Health that the reason the physicians did not take any interest in the bill was because they were not invited. I am sure this gentleman spoke for himself and not for the physicians collectively. I desire to say in reply to that misstatement that they were all invited, as the gentleman will learn if he will kindly look up the circular letter sent out to all the physicians last May. There also appeared in the *Kansas Medical Journal*, January 26, 1895, the following on page 49: "We desire to call the attention of physicians interested in medical legislation that the bill now needs their attention and hearty support or it may meet with defeat." This was written by myself, and again a prejudiced and malicious falsehood is nailed.

Had not Dr. Guibor, Dr. Ward, myself and one or two others interested ourselves, even neglecting business to do so, the bill would have died in committee, and all the thanks we have gotten is abuse. So ends the story of a medical bill for which so much hard work was done by its friends and a proportionate amount by its enemies, but I am constrained to remark, in closing, that it was murdered in the house of its friends. I trust I have given as true a history of the work of some of the committee as memory permits. I have refrained from personalities, although strongly tempted not to do so, for the sake of harmony and to prevent an uncharitable feeling toward myself by some who are too prone to jump at false conclusions as to the intent of this paper. I would like very much to have named the moral cowards who pretended to me that they were anxious to have a medical law, but who used the stilletto with the vengeance of a Mexican bandit, who you all know never faces his victims but stabs them in the back. (1895)

Appendicitis

GEORGE M. GRAY, M.D., Kansas City

Inflammation of the appendix vermiformis, or appendicitis, is a subject that has received a great amount of attention during the past five years, both from surgeons and physicians. The pathology of the disease has been closely studied, and the information gained from early operation has been of great value in clearing up the pathology, and giving a clear understanding of the pathological condition in the early stage of the disease. From knowledge gained in this manner, and from post mortem examinations, we have learned that infections of the appendix vermiformis are the cause of almost all inflammations of the right iliac fossa, and perityphlitis and ileo-cecal abscess are disesases known to be secondary to and caused by inflammation of the appendix; and we have also learned that there is no such disease as idiopathic peritonitis, but that all cases of peritonitis starting or having their origin in the region of the caput-coli are, almost without exception, dependent upon a diseased condition of the appendix; that inflammation of the vermiform appendix is of common occurrence is now generally admitted, and observations made on the post mortem table have shown it to have been the seat of inflammation in about one-third of all subjects examined; this has been one of the strong points advanced by physicians who have contended for the medical treatment for certain forms of inflammation of the appendix. . . .

As to different forms of inflammation of the appendix, numerous classifications have been suggested by different observers, such as catarrhal, perforative, ulcerative, etc., I believe that the classification given by Dr. John B. Murphy, of Chicago, indicates more clearly the pathological condition existing in the several forms. His classification is, first, simple pus infection, which produces the catarrhal variety; second, extensive pus infection by the bacillus commune or pyogenic microbe producing gangrene in a greater or less portion of the appendix; third, pressure atrophy, with infection of the appendix, either by fecal concretion or foreign bodies; fourth, retention accumulations from cicatricial contractions, stenosis or obliteration; of these different forms of appendicitis Dr. Murphy says, that from the reports of autopsies collected he finds that in 70 per cent of the cases there was perforation of the appendix, and that of his own cases collected there was 87 per cent. . . . Can we determine when appendicitis is present? In order to answer this question let us consider the symptoms presented in a case of appendicitis. The first symptom in acute appendicitis is abdominal pain of greater or less severity, referred to the epigastrium or umbilical region: in but few cases is the pain referred to the

region of the appendix in the early stage of an acute attack. The attack is generally sudden, without any premonitory symptoms; the pain is usually described as colicky or cramping, and is usually followed in a very short time by nausea and vomiting. The term "appendicular colic" has been given to this acute pain, and Dr. Fowler says of this term, that he considers it misleading and liable to give rise to indifference on the part of the medical attendant as to the true condition present and the dangers that threaten the patient, as the term colic has generally been applied to purely functional disturbances of the large and small intestines, and that the acute pains of appendicitis are due, on the contrary, to an inflammatory condition which may rapidly involve the entire organ and place the patient's life in the greatest jeopardy, and if the colic be of appendicular origin, then appendicitis in one of its forms is already in progress. Nausea and vomiting occurring coincidently, or shortly after the abdominal pain, is significant; the vomiting usually ceases when the contents of the stomach has been ejected, and the nausea disappears after a few hours, but may recur on perforation of the appendix or extension of the septic process. The character of the vomit is often of importance as indicating the condition present, as in cases where the general peritoneal cavity is involved the vomited material will be greenish and serous in character. In intestinal paresis the vomited material may be stercoraceous as a result of reversed peristalsis. Constipation usually precedes or accompanies the attack, but is not constant, some cases being preceded or accompanied by diarrhea. Tenderness in the right iliac fossa is an early and marked symptom, and taken in connection with sudden abdominal pain, accompanied with nausea and vomiting, it is the symptom of the greatest importance in arriving at a diagnosis; while the tenderness may be more or less diffused over the fossa, yet, on finger-point pressure one point will be found to be decidedly the most sensitive, and this point will usually correspond to the inflamed appendix; this point is usually found to be in the adult from one and a half to two inches inside of the right anterior superior spinous process of the ilium, on a line drawn from the process to the umbilicus, this being known as McBurney's point, and marks the exact point of greatest tenderness in a large majority of cases. This point of greatest tenderness will vary somewhat with the position, length and portion of the appendix involved. Fever to some extent is present soon after the attack begins, and varies considerably, but is no indication of the severity of the attack, for we may have a temperature of 103° Fahr. in a case where the appendix is safely walled off from the general peritoneal cavity, and only a temperature of 100° in another case where the appendix is distended and ready to burst with no protecting adhesions. The pulse is usually accelerated and is of more value than the temperature in determining the condition present, for it will indicate the amount of constitutional disturbance, and this will depend to a certain extent upon the amount of peritoneum involved and the form of sepsis present, but as indicating the gravity of the case and determining when an operation is necessary in these cases, as has been claimed by some observers, it is totally unreliable, for we may have a most serious condition present in the appendix and the pulse give no indication of said condition. Tympanitis is not an early symptom of any importance; it may or may not be present, but when present in any marked degree is an unfavorable symptom, indicating intestinal paresis. Rigidity of the muscles on the right side of the abdomen is a constant and valuable symptom; in general peritonitis there will be rigidity of all the abdominal muscles. Chill during the progress of an attack of appendicitis is a symptom indicating either perforation of the appendix or some extension of the septic process, but is not always present. Œdema of the abdominal wall over the region of the appendix is a symptom of some importance as indicating the presence of pus, but is not generally present early in the disease. Tumor can rarely be detected during the first thirty-six hours of the disease, but is usually present and can be detected on deep pressure after this time, and sometimes earlier where the appendix is situated close to or in contact with the anterior abdominal wall; the tumor consists of coils of intestines and sometimes omentum with the appendix bound together with inflammatory exudate for the protection of the general peritoneal cavity. . . .

As the case advances other symptoms manifest themselves, such as œdema of the abdominal walls over the region of the appendix, tumor, more or less irritability of the bladder may be present, especially in cases where the appendix is long and hanging down into the pelvis. Vaginal examination may be of some service in determining the location of the diseased process, but the information gained by careful history of the case and consideration of the early symptoms, will be of greater value. It is exceedingly difficult in some cases to differentiate between appendicitis, right-sided salpingitis, or pyosalpinx; indeed the appendix may be involved in these inflammations, and a differential diagnosis will be impossible without exploratory laparotomy. The making of an early diagnosis in appendicitis is of the greatest importance, and it seems to me the diagnosis in these cases is usually easy if the case be carefully watched and the administration of opiates withheld; which, if administered, will often so mask the symptoms as to make the diagnosis uncertain; for this reason, opium, in any form should not be administered until the medical attendant is certain of his diagnosis, and even then it is questionable if the patient is not better off without it. . . . These cases generally come under the care of the general practitioner first, and on him rests the responsibility of an early and correct diagnosis. As to

the medical treatment in these cases, I believe that a saline cathartic should be administered early in the case where constipation is present. Perfect quiet should be enjoined with absolutely liquid diet, with sufficient doses of phenacetine or antikamnia, or if necessary codea to quiet pain, and that removal of the appendix be advised as soon as diagnosis is certain.

Prognosis—Dr. Fowler, in writing on the prognosis of appendicitis, says: "The prognosis of appendicitis is unfavorable in cases treated non-operatively, in proportion to the severity of the infection; and in cases treated surgically, in proportion to the delay in instituting operative interference." In 176 fatal cases of perforative inflammation of the appendix collected by Dr. Fitz, 60 died during the first five days, 46 during the first four days, and 28 during the first three days, and eight on the second day. These cases show the importance of prompt surgical interference in cases of acute appendicitis. With our present understanding of the pathological condition present in a case of progressive appendicitis, and with a realization of the dangers that threaten the life of our patient, from infection of the peritoneal cavity, retained mucopus within a constricted appendix, and the rupture of this later into an unprotected peritoneal cavity, ulceration and perforation from foreign bodies contained within the appendix, or from gangrenous conditions of the appendix, and the hopelessness of both medical and surgical treatment of these cases when they have reached the stage or condition of diffuse septic peritonitis, and since there are no certain symptoms by which we can distinguish these cases that may be less dangerous and would recover from the present attack without operative interference, and when we consider the uniformly good results obtained by early operation, it seems to me that our duty is clear, and that we should advise operative interference in all cases of acute progressive appendicitis as soon as the diagnosis is clear. . . .

As to the operative treatment in these cases it must vary to suit the individual case, and the stage of the disease. If the operation is done early, before there is much infection of the peritoneal cavity, the appendix should be sought for and removed, and the cavity simply packed with iodoform gauze. Where there is pus in any quantity about the appendix care should be taken not to infect the general peritoneal cavity, by first, packing sterilized gauze about the appendix so as to prevent the entrance of pus at any point where the peritoneal cavity may have been opened and the pus should be immediately removed by sponging away with sterilized gauze, no water or antiseptic solutions being used in the wound. The appendix should be removed by placing a ligature around it at the base and a second ligature around the mesentery and cutting it away. Drainage tubes are unnecessary where the abscess cavity is small. The strictest asepsis should be practiced in all these cases, both in regard to the cleansing of the field of operation, the sterilization of the instruments, sponges, etc., and the cleansing and disinfecting of the operator's hands. In cases that are operated upon late it may be advisable to simply open the abscess and drain.. Where the abscess is opened without opening into the general peritoneal cavity, as is possible in some cases, then there would be no objection to cleansing the abscess cavity by irrigation with sterilized water; but where there is any probability of the general peritoneal cavity being opened into, irrigation should be avoided for fear of carrying the infection into the general peritoneal cavity.

The advisability of removing the appendix in these late operations will be a question for the operator to determine. Where there is a large abscess cavity, with the appendix bound down by adhesions, the danger of infection of the general peritoneal cavity that would be incurred by the breaking up of adhesions in removal of the appendix might justify the operator in leaving the appendix, especially where the condition of the patient is not good, as is often the case, and trust to nature to repair the diseased condition by sloughing away of the appendix, or where a sinus may remain, to a second operation when the condition of the patient has sufficiently improved; but where the condition of the patient will permit, I believe it is better to remove the appendix, if possible, even in these late cases, and with proper precautions there is no great danger from infection of the peritoneal cavity by the necessary efforts to remove it.

In operations on chronic recurring appendicitis, when operated upon during the quiescent stage, the appendix should always be removed. . . .

In these cases the abdominal wound should be closed and small drainage tubes with strip of gauze to bottom of the wound.

As to the treatment of cases where there is general infection of the peritoneal cavity, or a greater part of it, diffuse septic peritonitis, these cases have generally been regarded as hopeless, and the percentage of recoveries has been small. Indeed the mortality in these cases has been so large that many surgeons have advised non-interference in many of these cases. In the *Medical Record* of March 30, 1895, is an article by Dr. McBurney on the treatment of this class of cases. He reports twenty-four cases on which he has operated during the past two years, of which fourteen recovered. All these cases were treated by incision, irrigation with sterilized salt solution, drainage by strips of gauze and glass drainage tube extending to the most dependent part, but adds that he has had quite a number that he considered to be in too hopeless a condition to justify operative interference, which were allowed to die without operation, but the results he has obtained by this plan of treatment are certainly much better than that obtained by any other method that I know of. . . . . .

(1895)

The State Control of Tuberculosis

W. E. McVEY, B.S., M.D., Topeka

The obligation of a municipality or commonwealth, in the disposition of its citizens afflicted with chronic infectious diseases, depends upon the danger which threatens the population as a whole and the possibility of eradicating the disease or diminishing its fatality. The infectious nature of tuberculosis is too well established to need any further exposition of the facts which demonstrate it. . . .

The well established infectious nature of the disease taken in connection with the fact that in the United States it is estimated that at least 164,250 people die annually of tuberculosis, an average of 450 each day, alarming as it seems, should have awakened a proper appreciation of the great danger which is threatening our population.

. . . It is estimated that, during the last decade, the death rate from consumption in the United States has diminished at least 10 per cent. This reduction has doubtless been due to a better education of the people along the lines of the care and prevention of disease, and such restrictions as have been placed upon the spread of tubercular infection by certain States and Territories; but particularly due to a better understanding of the pathology and treatment of the disease by the medical profession. . . . The results are encouraging, though they do not approximate what may be or has been accomplished by the rigorous enforcement of quarantine regulations. It is a surprising fact that we must go back in our history more than a hundred years to find definite reports upon this point. A hundred and twenty years ago the kingdom of Naples was afflicted with a scourge of tubercular infection which threatened to depopulate the kingdom. A most rigid quarantine system, enforced by fines and banishment, and made more effective by fire and isolation, resulted so far in the eradication of this disease that this once greatly afflicted country has now the lowest death-rate from tuberculosis of any country in the world.

I would not suggest that the tuberculous element of our population be subjected to the hardships of rigid quarantine regulations, because I believe such a course impracticable and unnecessary. I do think, however, that some of the principles of the quarantine may be safely and profitably adjusted to the present needs. We can only speculate upon the ultimate end of any legislative enactment for the regulation or control of tubercular infection. It is altogether probable that no such legislative interference would result in any pronounced or permanent benefit. In a great republic, where laws must be enforced as well as made by the people, there must first be a strong public sentiment in their favor or such laws soon become inoperative.

Health boards have occasionally recognized the danger, and have issued circulars for the public information in regard to the care and prevention of tuberculosis. . . . Until the people can be thoroughly convinced of the infectious nature of tuberculosis little can be hoped for from legislation.

Spitting ordinances have been adopted by various cities, but in nearly every instance have soon been utterly disregarded because the people attached no importance to them except as a means of satisfying the importunities of a few over-fastidious individuals.

Laws which relate to the spread of bovine tuberculosis have been made and are tolerably enforced in a number of States in this country. . . . Sufficient evidence has not yet been produced to positively determine the susceptibility of the human organism to infection by the bovine tubercular virus; there is on the other hand, not sufficient evidence to the contrary to justify us in ignoring this possible danger, and we are therefore justified in assuming that all laws regulating the spread of bovine tuberculosis and guarding against the use and sale of infected milk, are directly in line with any effort which may be made to suppress or eradicate this dread disease.

. . . By a general consensus of opinion we accept the Koch bacillus as the *sine qua non* in tuberculosis, but since our present knowledge does not comprehend a tangible means for the control of its dissemination or virulence, I do not believe we will derive much benefit from a repetition of what is known about it. . . .

A very early observation, which is no less noticeable now and no less true on account of its ancient origin, was that carnivorous men and animals were comparatively immune to tuberculosis. . . . I believe if there is a difference it lies in digestibility, ease of assimilation, and relative food value [of meat]. It is quite commonly observed that tuberculosis patients show most rapid improvement who are restricted to a meat diet, and though we are unable to establish a definite relation between tuberculosis and a deficient meat diet there is a cachexia closely related to the habit of large meat consumption which is strongly opposed to tuberculosis, in fact very closely approximating a true immunity. . . . We are hardly ready to assume that there is a specific immunizing element present in these conditions; I am inclined to believe that this immunity or vital resistance depends upon the maintenance of an equilibrium between tissue metamorphosis and the process of reconstruction. A study of first principles shows us that all nitrogenous compounds are unstable. They are readily decomposed and readily

changed from unstable into stable compounds and in this change evolve both force and heat, as we see in the arts great and sudden expenditures of energy frequently accompany the molecular changes which take place in highly nitrogenous compounds. All functionating tissues of the body are composed of nitrogenous matter. Ferments, which during their own molecular changes set up changes in the oxyhydro-carbons, are all nitrogenous. And we find that in all organisms where there is even slight vital activity the molecular changes are initiated by substances containing nitrogen. In the reduction of non-nitrogenous compounds heat is evolved, and when the reduction takes place within the tissues force or vital activity may be produced, but the molecular change is initiated by the nitrogenous elements of the tissue. There is then a concomitant metamorphosis of the nitrogenous compounds of which the functionating tissues are built and the non-nitrogenous compounds which permeate them, during the ordinary vital activities of an animal organism. . . .

The most important element in the production of these molecular changes is not taken in as food, but, in the higher animals, by the respiratory organs. The presence of oxygen is essential to the molecular changes in both the nitrogenous substances of the tissues and the non-nitrogenous substances, and any interference with its supply, by changes in the respiratory organs or in the circulation which distributes it through the tissues, or in the environment from which it is derived, must interfere with a perfect equilibrium between waste and repair. . . .

Poor digestion and faulty assimilation hamper the efforts at reconstruction, as also does deficient lung capacity, by limiting the supply of oxygen to the blood, and a defective circulation by an inadequate distribution through the tissues. . . .

Probably in this lies the explanation of the necessity for the individual selection of climate according to temperature and atmospheric density. Sunlight is one of the essentials in the successful treatment of tuberculosis, because it invigorates the vital activities and because it is quickly and surely destructive to tubercle bacilli. These invidious little atoms of organic life, which are capable of great achievements in the dark recesses of the human anatomy, droop and die when exposed for even a short time to direct sunlight. These things, which have so much to do with determining the question of pre-disposition or immunity, are not to be regulated by legislation; in fact, I do not believe either in the present or future efficacy of legislation directly against the spread of tuberculosis. Some regulations may be adopted which will assist in giving the people a better understanding of the nature of the infection and enable them to better protect themselves. In addition to the general distribution of literature upon this subject, the principles of hygiene and the nature of the various infections, periods of incubation and means of prevention, should be taught in our public schools. During the most critical period in the lives of our children, their mental development is being crowded at the expense of bodily vigor and functional perfection, and the foundations being laid for many of the chronic ailments which it is our province to investigate. This condition of affairs might, I think, be greatly modified if there were adopted into every curriculum in our public schools a course in physical culture. I do not mean the "finicky," faddish, society drill, which has nothing for its object but perfection in beauty and grace in movement. I mean such exercises as will develop the chest and increase the lung power so that plenty of oxygen will be supplied to the tissues; that will give tone and strength to the flabby heart muscles and send the ruddy glow of health to the fading cheek; that will give power to the limbs so that walking will be a pleasure. These things lie in the way of both legislation and education, and will do much toward preventing the spread of tuberculosis. . . .

Sanitaria for the treatment of the consumptive poor have been demonstrated to be the most efficient means for diminishing the death-rate and the most adequate against the prevalence of the disease. In those cities of Germany where public sanitaria for consumptives have been in existence for many years the death rate from tuberculosis has been diminished at least one-third.

The percentage of cures is much greater under sanitarium treatment than has been shown by any other plan. Climatic conditions forming the principal attraction of health resorts, are soon obscured in their therapeutic importance by the general prevalence of tubercle bacilli. The sanitarium maintains its value by stringent rules of hygiene, which can be only very imperfectly enforced by the local authorities of the ordinary health resort. There are but few institutions for the care of consumptive poor in the United States, but the results at these institutions are sufficient to demonstrate the possibilities along this line. The average cost for caring for hospital inmates in New York City is one dollar per capita, but in other institutions for the care of consumptive poor only, the cost per capita has been reduced to fifty cents per diem. In view of the fact that a much larger per cent of cures result from sanitarium treatment, and also that in localities where such institutions are established a great decrease in the prevalence of the disease has been noted, it seems to me that every State should provide for the care of its consumptive poor and for the protection of its people against infection by the erection and maintenance of suitable institutions of this kind. (1900)

Fractures from the Standpoint of a Country Physician

W. B. MEAD, M.D., Oberlin

While my subject is "Fractures," I prefer that my remarks shall partake of a disquisition or plea for the preservation of the country surgeon, rather than undertake to advance anything new in the technique and surgical procedure of the treatment of fractures.

In the development of the civilization of nations and peoples, surgery precedes internal medicine. The earliest records which relate to surgical operations came from Egypt. There was nothing of surgical interest in Greek literature between the time of Homer and Hippocrates; but from Hippocrates to Hunter and from Hunter to Senn, the advancement of surgery has been going on. But the progress of the nineteenth century surpasses the two thousand years preceding, for in this century occurred the discovery of anesthetics, the establishment of aseptic and antiseptic surgery upon the scientific foundation of the new science of bacteriology. The numerous hospitals that have been built, the dissecting room and laboratory, the X-ray, microscope, thermometer and ophthalmoscope, have given an impetus to modern surgery. The country physician has at no time in his history had so great an opportunity to perfect himself in the surgery of fractures, at least, as he has today.

. . . . .

The hospital is well enough for the city physician, but it ought not to be the burial place of the ambition and aspirations of the country doctor. Certainly a four-year course will render better qualified the physician whose abilities in the line of surgery are not blighted by the shadow of the hospital. Again, if the country doctor surrenders what surgery he is competent to do, he becomes unscientific and must practice medicine by circular, or go into politics for recreation and emolument.

In my twenty years experience in the short grass country, my greatest triumphs are to observe smiling patients, walking without hesitancy, who had suffered compound, comminuted fractures of the leg, for by rigid asepsis and daily observation I had been enabled to save their extremities that years ago would have suffered amputation.

We want to keep alive the self-confident, self-assured country surgeon. Instruments are in price within the reach of every physician, he can disinfect the hovel if need be; literature is ample and cheap, and he can return to his alma mater and brush the cobwebs of disuse from his brain.

The day for the ignorant bone-setter is past. The surgeon today must be a scholar and a genius, because much is by right expected of him. Surgery now-a-days means "to save," instead of "to destroy."

In the country the surgery is meagre, and we should devote all the time necessary to rehabilitate our patient. I have treated fractured femurs, twenty miles distant from town, with perfect success.

There is no reason why the country surgeon should not be accurate in his diagnosis and treatment. A fracture is a solution in the continuity of a bone or cartilage, produced by violence. A fracture may be partial or complete; transverse, oblique or longitudinal; single, double or multiple; simple, compound or complicated. Symptoms of fracture are loss of function, absence of normal contour and crepitus.

In case of a fracture in the country, the messenger makes great haste for the doctor, like David Harum, when his wife collapsed, in his race for the doctor he says, "I done the heat of my life," and usually the swelling is not so great as to prevent an accurate diagnosis. The surgeon must at all times be ready for every emergency. The diagnosis is not attended with difficulty, provided displacement, mobility and crepitus are present. For the lower extremities, plaster of paris is the splint par excellence. For the arm and forearm, where the vessels are superficial, plaster of paris is not well adapted. The retention of the fragments in apposition is the object desired. Redressings are necessary to observe the parts, and see that the patient does not suffer from tight bandages. The old doctor with his long Liston splints and good results, we ought to be successful with plaster of paris, so much easier of adjustment and retention.

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As to splints, the surgeon must be governed by the individual case. Patent splints should be excluded, for it is absurd to think of different limbs being moulded in the one procrustean bed; here is where the genius of the individual surgeon comes in, in his adaption of the splint to the perfect adjustment and retention of the fracture to be treated.

In complicated fractures or fracture dislocations, where thorough irrigation and drainage are necessary, require especial care and treatment, as well as those

cases of non-union due either to local or constitutional causes, where wiring of the bones becomes essential to a complete union.

I have not, in my country practice, observed the rules of the hospital as to the application of temporary and permanent dressings; for often in the country it is proper and convenient to apply the permanent splint at the first dressing, being careful to envelop the extremity well in absorbent cotton before applying the plaster of paris and the danger from gangrene following compression is reduced to the minimum.

The first thing after perfect coaptation of the displaced bones, is to apply surgeons' plaster over the immediate seat of fracture; its retaining power is underestimated.

In all crushing injuries the immediate application of plaster of paris over absorbent cotton, carefully watched, restores the circulation and saves the parts from amputation; for if the injury is to the extremities, they have a very abundant supply of blood vessels, which travel and radiate throughout every muscular fiber, and which form such a network over the fingers and toes that, unless the member is lacerated around its entire circumference, we may hope that sufficient vitality remains to preserve a healthy regenerative action.

For sprains, the constant application of hot water for twelve hours, followed by the application of splints, completes the cure.

The old plan of lotions or liniments for sprains is obsolete, and even the hot water dressings may be dispensed with as a primary dressing, applying the splints at once and putting the injured parts at rest.

In the treatment of fractures, never forget the patient.

To the well-to-do, the hospital, however remote, may offer you competition, for the friends may urge the patient's removal to the hospital, though you may feel competent to render all necessary treatment.

Heat and heart stimulants will relieve the shock, while careful vigil and tact will assure your patient that he is in safe hands.

There is no reason in this enlightened age why the country surgeon should not, in cases of fracture, furnish the requisite and ordinary skill for the successful treatment of these cases.

Fractures are the special domain of the country doctor and must ever remain so, and while he might pause at an ovary or an appendix, he ought not to fail in the treatment of a fracture.

It is nominated in his diploma as explicitly as were the contentions of Shylock in his bond, that he is a surgeon, and we dislike to note his decadence.

The surgeon who fails, is as open to attack as the Westminster Confession of Faith is now to assault, although what is, ordained and inscrutable, and what will be decreed.

As to whether he fails or succeeds, depends on the man; the texture of his convolutions, his education, his perception and judgment. Here he is chief of the staff. He ought to be proud of his noble calling, and, as Milton says: "To scorn delight and live laborious days," to maintain his reputation. (1900)

From the Proceedings of the Kansas Medical Society
30th and 31st Annual Meetings
1896-1897

NOTICE

This report does not include the papers and discussions for the simple reason that there was not enough money on hand to publish a full report, and the officers did not feel justified in contracting a debt for the Society. Prompt attention on the part of each member to the payment of dues will insure a complete report of the next meeting.

How Much of the Specialties May the General Practitioner Do

L. REYNOLDS, M.D., Horton

Specialists have so encroached on the work of the general practitioner for some time that some defense seems necessary. Every department of medicine is necessarily full of responsibility, and he who endeavors to escape easily can never gain a desirable practice. If you argue that to do general practice so limits one's time that he cannot qualify himself, I answer that it is always the busiest practitioner who does most of the specialties. Don't understand me to advocate efforts to do practice for which one is wholly unfitted, but I do insist that the family physician can and ought to be well qualified to do a great deal of work which has formerly been left to the specialist.

We, as general practitioners, are expected to be able to diagnose special conditions, and our special friends will insist on this, apparently unmindful of the fact that diagnosis is frequently more difficult than treatment.

It must be very tiresome to a patient who is the subject of various pathological conditions to be handed around from one physician to another, passing through the hands of several, when one of them might have rendered all and more efficient service owing to a more harmonious effort.

Such policy may be good in medical centers, but it is hard on the subject. Imagine a patient with a not uncommon variety of abnormal conditions, going to Dr. A for indigestion. He is referred to Dr. B to have his refraction corrected. He is next handed over to Dr. C for removal of tonsils, nasal spurs, or other growths. If hemorrhoids, or rectal ulcers should be found among his morbid conditions, Dr. D is asked to cure these, and if the patient be a female the circuit is completed in the hands of Dr. E, who does a curettment or other minor procedure.

Such cases often have a real existence, and how much better that one intelligent physician take and keep charge, doing all that can and ought to be done.

The effort to study all the departments of medicine so diversifies our reading and observation that more may be accomplished than when all effort is confined to one channel.

The tendency in the populous medical centers to minutely subdivide the practice into specialties, may be an advantage both to the patient and practitioner in these localities, but this is not true of us and our patrons in comparatively rural districts. It is rather our duty to know and to do some of all the specialties than to perform the function of assorters and distributors of cases. However, it is the emphatic duty of all unqualified to refer important and difficult cases.

No one should claim that lack of time, but rather idleness, so limits our capabilities as to render us unfit to do a great deal of work ordinarily done by the specialist. One bad habit so wasteful of our time and destruction of our interest is that commonly called loafing. If we do not voluntarily waste time at the drugstore or elsewhere, some well meaning but thoughtless friends may consume our time at the office. This should be avoided in some way, and one avoidable way is to make short but maybe otherwise unnecessary excursions from the office, thus getting rid of the time killer. Have frequently found it necessary to resort to this method of economizing time.

The best material out of which to make a specialist, is the general practitioner, but since but few of us can limit our work to one department of medicine we ought to make the most of every department. There is such an interdependence or relation of one part of the body with every other that general experience is necessary to the best judgment. As the truths of medicine are discovered, its study may be more readily accomplished. We are given shorter cuts to correct conclusions, having to spend less on misinformation which must subsequently be unlearned. Post graduate instruction should be taken and society attendance practiced until such knowledge is acquired. This course will pay as a matter of financial investment. Because of the delicate mechanism and fine functions of the eye, this department of our work is deserving of greater distinction and separation than any other as a specialty. However, the eye specialist cannot reflect on the general physician if the latter do refractive work which has so long and so largely been done by ignorant laymen. We certainly cannot do worse than these in the fitting of glasses, besides this field of work legitimately belongs to the profession. It should no longer be left to the jeweler or traveling vender without an effort on our part to do the work.

At least one physician in every municipality should correct errors of accommodation and refraction. Errors of accommodation are the easier to correct, and is the part that is pretty generally done by laymen.

Habit and precedent are strong things and most of us have a set precedent by our habit of neglecting the specialties.

A little extra effort will be required in beginning a new work, but all such extra efforts will be fruitful sources of knowledge and income.

There is an extensive amount of work and revenue which should be utilized by the family physician in diseases of nose, throat and ear. There is such a relation existing in diseases of these parts that all should be studied together. The great principles underlying the production of these morbid conditions of the nose and throat are drainage and ventilation. Preservation of normal drainage and ventilation is the great aim of treatment.

Improper or obstructed drainage produces stasis, decomposition and sepsis which are apt to result in complications. All enlarged and diseased tonsils should be removed. I know of no exception to this rule other than tubercular or malignant diseases and excision may be best in these. Recurrent quinsy may be thus permanently cured. Ear diseases which grow out of septic conditions of the throat are frequently prevented by timely removal of the tonsils. The crypts of enlarged tonsils are germ incubators and storehouses. The common remark of doctor and layman that "catarrh is incurable" is about to pass away, for the multiplicity of conditions commonly called catarrh are nearly all curable, fully as much so I think, as diseases of the rectum and by similar methods—that is to say, by surgical treatment. Nearly all such diseases are mechanical and if cured must be treated mechanically. A good general knowledge of rectal diseases is readily obtained and profitable. We ought not to allow modesty to interfere with proper examination of this part of anatomy in either sex, when symptoms point to disease of the part. We all know how essential it is to be well posted on genito-urinary diseases, for no community is free from occasional outbreaks of contagious diseases of these organs. Such diseases are frequently treated very unskilfully, the evil effects of which may be very remote and varied, requiring an expert to unravel and remove the sequelæ.

According to my observation, the specialties in which the general practitioner is most deficient are those of neurology and dermatology. A knowledge of nervous diseases is of great advantage for diagnostic purposes although but little practice comes to the family physician from this source. A good deal of this work is of such a nature as to require isolation and restraint, conditions which cannot well be met in general practice.

Diseases of the skin, except the most common and simple, require a great deal of study with close observation, and, at best, are a small source of revenue to most physicians.

Thus, it is seen that conditions combine to make these specialties weak points with the rank and file of the profession.

Gynecology is the great specialty and numbers far more members than any other. It is but fair to say that a large percentage claiming equipment for this field are without special knowledge. But little work in this line is ordinarily done by the practitioner until after middle life owing to the general impression among laymen that age and time only bring familiarity with female pathology. This should not discourage effort among the younger members of the profession for the tide, especially in the more rural districts, seems to be turning in their favor. To these I wish to say: "Study pathology first, last, and all the time, with therapeutics incidentally."

. . . . .

(1900)

1901
"The Doctor Promotes The Public Health"
1920

2.

4.

3.

1. First building, KU School of Medicine in Kansas City.
2. Dr. S. J. Crumbine, Secretary, Kansas State Board of Health. (1904-1923)
3. First Kansas built airplane. (1911)
4. Threshing crew, Montgomery County. (1912)

Introduction

We now have electric lights, some electric street railways, and the Western League has been in operation over a decade, with Topeka and Leavenworth represented. The Spanish-American War is over, and a few automobiles are beginning to appear and to frighten respectable teams of horses. Dr. Naismith invented the game of basketball and colleges now have teams engaging in the sport, wearing uniforms which look much like football uniforms (and well they need the padding). The state has survived drouth, grasshopper invasions, and blizzards, and has continued to grow. Kansas agriculture has expanded; and both agriculture itself and farm life are in the midst of a great improvement. Prohibition has been on trial for twenty years, and is still the source of much argument and violence.

Wilhelm Konrad Roentgen has now made his epochal discovery of the x-ray, and its use is beginning to spread. The beginnings of an understanding of immunity have appeared with smallpox vaccination (although it is not yet fully accepted), and limited serum (antitoxin) therapy. The University of Kansas will, in a few short years, establish a four-year course in medicine, having had a two-year preparatory course since 1880. The American Medical Association has recently been reorganized on the principle that state societies are its components, and country societies are components of state organizations. The JOURNAL OF THE KANSAS MEDICAL SOCIETY is ready to make its debut, and will henceforth be the source of our information.

The approaching decades bring a growing realization of the importance of health care for the public—preventive medicine, the control of communicable disease, control of epidemics, and elimination of health hazards. There is also a growing fervor for the clinical practice of medicine and the search for new procedures and techniques, as the doctor promotes the health of the public.

The Journal

OF

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Page One, of the first issue of The Journal
JUNE, 1901

The Origin of the *Journal*

In connection with this matter I might say, we have no representative journal, our proceedings have been published in book form, but it has cost almost as much as a journal would cost, and I hold in my hand a proposal which perhaps it will do no harm to submit to the society, a proposition for publishing a journal for the Kansas Medical Society by A. D. Bauer Printing Company, thirty-two pages each month, five hundred copies, size and style and paper like sample, that is the size of this paper that I hold in my hand, leaves trimmed and wrapped for mailing, thirty-two dollars per month; that would be three hundred and eighty-four dollars per year; for extra pages, one dollar per page; for extra copies, two dollars per hundred. I may mention that the book we have had printed, or rather the proceedings in book form, have cost two hundred and seventy-five dollars, for wrapping and postage thirty-five dollars, making a total of three hundred and ten dollars. In this matter we have had no income, there has been no advertising, but with a journal we could probably make something by taking in advertising matter. The journal would cost three hundred and eighty-four dollars with advertising privileges. I think it would be patent to most of you that something could be saved by having a representative organ. Furthermore, if this reorganization scheme is carried out, we shall need some means of communication. I think this is a matter for the consideration of the Society, and I hope you will take it up. Upon motion, the report was adopted and the Committee discharged.

The President: I will refer the matter of publishing the journal to the Committee on Publication, with power to act. The Committee on Publication consists of the Secretary and the secretaries of sections. (1901)

Editorial

We have for the second time been refused admission to the mails as second-class matter. Why the Kansas Medical Society should be refused the privileges granted to other medical societies and other organizations does not seem very clear. We were informed, when our first application was turned down, that our by-laws should provide for the publication of a journal and an appropriation to pay for it, or that we must have the written order from the members for the JOURNAL authorizing the treasurer to pay the subscription price out of the annual dues. As we could not change our by-laws until the next meeting we requested the members to send us the required subscriptions and sent to each member blanks for the purpose. Out of 246 members 130 have complied with the request. After we had received a few more than one half of the subscriptions we should have received, we made a second application, filing an affidavit to the effect that we were authorized as an officer of the society to publish the JOURNAL OF THE KANSAS MEDICAL SOCIETY and such other facts as seemed to the postmaster here to be required. This application was also denied but upon what grounds we have not been informed. At our next meeting it will be necessary to amend our by-laws to fulfil the requirements of the Post Office Department. Had more of the members replied to our request and filled out the blanks sent to them we feel confident we would have succeeded in getting the JOURNAL through. It is a serious matter in that it costs us much more to mail the JOURNAL and in that we are compelled to cut out most all exchanges on account of the additional expense.

The JOURNAL promises to be a success in spite of the many discouraging features we have had to contend with. Our advertising business shows a healthy growth and it is only a question of time when it will be self supporting. The society should take the matter in hand at its next meeting and make proper by-laws for the publication of the JOURNAL and also provide for an editor and board of managers. (1902)

Just Rewards in the Medical Profession

KATHARINE B. RICHARDSON, M.D., Kansas City, Mo.

The science of medicine is wonderfully progressive but its students cling to tradition with a tenacity that is as wonderful as it is senseless. Long ago the Church and Medicine, joining hands in noble self-abnegation, gave to the world unreservedly and without price all that could be of any benefit to the race. Today both make the same high sounding claim, but know that the words have lost some of their old time meaning. The Church now accumulates non-taxable property representing millions, and Medicine looks enviously at the riches of its neighbors and attempts consolation for its poverty by pretending that the lack of business acumen is the pride of the profession, while it clings to shadowy ideals long since thinned to nothingness and constantly drives from its ranks brainy men who refuse to be bound by its ethical codes.

I want to compare medicine and its followers with other professions and other high grade men. I know it will be immediately claimed that I am making money the measure of success. *This I distinctly deny.* Successful doctors should have paid them all possible honor, but it is not easy to see why in addition they should not be allowed the same means of accumulating money as are permitted to other respected professional men.

Art sets before its votaries substantial rewards of kind and degree as are admitted to appeal to all creatures, medical men excepted.

. . . . .

The scientific man, the inventor, the banker, the business man, may each hope for reward commensurate with his results and each looks at the doctor and wonders why a singular and unexplained adherence to a tradition bars him from so much that is esteemed by his fellows. Held down by indefensible rules he has produced instruments and appliances which are most admirable. Knowing that he personally reap no benefits from his labors, he pursues investigations which result in great discoveries. But, unfortunately, he does not always remain loyal to a profession which fails to encourage if it does not handicap his efforts. He is a doctor, but he is human.

We stand on the defensive, and we try to protect ourselves from the quacks and pretenders who make unacknowledged but great inroads into our reputation, while we blindly remove from our ranks the incentives which make for encouragement of ability. . . . The profession has need of all its brilliant men, and we are foolish if not justly proud of our work; we shut our eyes to the needless obstacles in the path of the practitioner and allow him to stumble into the fold of the ostracized. Law will give but little help. Our opponents are not fools and if we continue to stand we must not foolishly tell ourselves that we as an organization have reached perfection, or that the code laws of long ago are about the only human inventions that must not change. We have a Bureau of this, that and the other to look to the interests of everything but the medical work of the U. S. Why not have a Bureau of Medicine? Is any thing on earth of greater importance than the National health? . . . Always has England recognized her great medical men. Witness *Sir* before the names of Cooper, Lister, Jenner, McKenzie, Quain and Thompson.

We shall never emulate England. It is not the American way. But may we not hope for the time when American Physicians may more thoughtfully consider their code: viewing it with the eyes of the actual present, and together work for the advancement of their brothers (and sisters) along lines which lie parallel with that leading to success in other professions. (1901)

Dr. J. E. Minney is the latest Topeka physician to purchase an automobile. (1909)

Reorganization in the A.M.A.

The members of the Kansas Medical Society should be interested in the reorganization movement of the American Medical Association, because in our plans to reorganize the Kansas Medical Society we have tried to anticipate the action of the A.M.A. How near we succeeded each may judge from the report of the committee, which follows, and which was adopted by the A.M.A.

There seems to be lacking a very necessary feature in this plan of reorganization if it is to bring about any great betterment of state and local organizations, or, at least, if it is expected to make local societies subordinate to the state society. The American Medical Society recognizes all local societies and accepts members therefrom as readily as from state societies. Membership in the A.M.A. should only come through the state society. Life of membership in the A.M.A. should depend upon the good standing of the member in his local and state societies. As it is now, members join state or local societies until they have gained admission to the A.M.A., and they then drop the local affiliation.

The reorganization of the A.M.A. can not be of any material benefit to state organizations until some change is made in the methods of acquiring membership. The advantages of reorganization to the A.M.A. are self-evident and the suggestions to state societies are certainly well pronounced, but state organizations need the assistance and protection of the stronger society if it is to be much of a factor in many states.

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While the committee fully appreciates the fact that its duties do not extend below the American Medical Association, nevertheless it has, in the interest of a complete organization, considered the state and local societies, and to complete this urgently required organization of the regular medical profession, offers the following recommendations to the various State and Territorial medical societies:

(a) That each state society shall at the earliest possible moment appoint a Committee on Organization, to which shall be referred, with the Association's endorsement, the report of your committee, and especially that part which refers to state and county societies.

(b) That each state society immediately raise funds and employ an organizer to organize the profession in its territory.

(c) That the state societies unitedly agree to federate themselves in the American Medical Association, and as a preliminary to this adopt a uniform organic law in regard to certain fundamental principles, viz., to divide their annual meeting into two branches, legislative and scientific; the legislative branch to be as small as is compatible with representation from all the county societies, and to be composed of delegates elected by the county societies.

(d) That membership in the county or district societies shall constitute membership in the respective state society without further dues, and that no one be admitted to membership in the state society except through county or regular district societies.

(e) That funds to meet the expenses of the state society be raised by a *per capita* assessment on the county and district societies.

(f) That a united effort be made to influence special societies to limit their membership to those who support the regular organization, and the seminational and miscellaneous societies to encourage systematic organization, by covering a definite territory and also by limiting their membership to supporters of the regular organization.

(g) That each State society create a permanent committee and a fund for the purpose of enforcing all medical laws in every part of its territory.

(h) That each state society co-operate with the American Medical Association and with the other state societies in solving the problem now before the profession relating to medical education, medical legislation, reciprocity, licensing, etc.

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(1901)

We have received replies to the circular we mailed a few weeks ago from about one-half of the members. We are anxious to get The Journal entered as second-class matter. And in order to do this we must comply with the postal laws. Inasmuch as The Journal is published by the society, it is necessary that we have orders from the members for The Journal. We can get it admitted as second-class matter provided we leave out the advertising matter, but we do not wish to do this. We hope to reduce the expense of publication considerably by the income from advertising. As we are now situated we have to pay one cent for each copy mailed, whereas as second-class matter it would cost us one cent per pound. It seems that every member should be sufficiently interested in the society to give a little attention to so important a matter. Kindly fill out the blank sent you and mail to the Secretary at once. (1901)

The Microscope—Its Importance to the General Practitioner

C. E. MUNN, M.D., Topeka

After nearly forty years devoted to studies of subjects upon which the art of modern medical practice depends, it seems that I should be able to say a few words upon a very important help in diagnosis. I may say at once I have done little original investigation, because in my active working life it seemed my imperative duties were to use and practice from the results published of the discoveries of those better qualified. But the experiences of the teachers of my time may not be sufficient now to conduct safely to clear diagnosis, and therefore prognosis, and rational, that is, modern treatment, for so much is it the fact that modern therapeutics is based upon what has been learned in the last two decades of the causes of disease, and not so much upon its clinical aspect.

A book recording the experience and teachings, published fifteen years ago, of many matters of science, may be very useful but not contain vital facts and deductions which must be known today to insure successful practice. . . . They described the "scrofulous diathesis" and illustrated by describing the type of cases. It might be a young girl with large dark eyes, long lashes, fine complexion, "sweet smelling flesh," rounded figure, but on the whole a delicate, not a muscular, physique. . . .

Now how different. The clinical thermometer and the microscope, if employed by any modern student, would reveal the infection, the active cause of disease, and modern surgery possibly removes it while confined to localities within his reach; or the advanced therapeutist might explain the battle of the cells and direct in time the best efforts of improved nutrition.

. . . . .

It has a true value to the working man in medicine and none of us neglect its records. And here I will commence to speak of the microscope, which should be the companion of the thermometer, the stethoscope and the test-tube. I say the companion, not to take the place of other helps, but in due proportion, in daily use, in the office or modest laboratory. If diagnoses be, as some one has said, only the science of probabilities, we need all modern aids, and, in my opinion, the microscope will by the visual sense fill the place the chemistry, the auditory, and even at times all the other clinical signs leave unrevealed. This of course is done by the enlargement of the visual sense. "Seeing is believing" is a trite comment upon evidence, and, with proper care, seeing the cause under a microscope is quite easy, and in comparison is quickly qualified and its importance estimated.

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The man first using his instrument for practical work is not supposed to have anywhere near the knowledge which its use has already revealed, but at first will study a few forms met with most frequently and practice the simplest means of obtaining and displaying them. A fair knowledge of normal histology will be acquired and the morphology of the pathogenic bacteria learned in a very short time, when their significance is properly appreciated.

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But most useful the microscope will prove to the man of "cares and little time," when the conditions first manifested by throat symptoms cause anxiety. If accustomed to use his instrument it will surely aid him. He will have learned to use a little clean cotton to bring home a specimen of the exudate upon it for examination. A few tubes of proper culture media will be kept for this work. And selfish or professional interest will incite to the study of the infecting forms known as particularly dangerous. One will not wait for this examination, or withhold the essential treatment if the clinical signs show plainly what to do; but what a comfort to the physician, and of what vital interest to the patient and the community, when the doctor in the quiet of his room determines diphtheria or not. The modern Doctor of Medicine is or should be first a sanitarian, and best understands the embarrassments to the family of the inexorable laws attending preventive medicine.

. . . . .

(1901)

THE State Examining Board has had a little trouble —just a little—not nearly so much as was expected. It seems strange that those whom the law is supposed to benefit should make trouble. The other fellow has a right to, but the man who has a diploma or other legal evidence of qualification don't help matters any by making a fuss. It isn't wise to stir up a legal muss over a law which is so new, If strained too hard it might break. Let us not see any flaws in it until they are shown to us. We have all worked hard for a law and we have got something—let us keep it till we can get a better one. (1901)

Malaria

GEORGE A. BOYD, M.D., Baldwin

"Malaria: a febrile disease due to poisonous emanations from damp ground; or more correctly the emanations themselves." This definition, taken from a medical dictionary published in 1900, defines the disease as it was understood in 1880. Our knowledge of the disease is now almost complete, and a brief summary of that knowledge will help to dispel some of the old notions that will cling about us. While explaining the disease it brings us to the larger problem of prophylaxis, as is the case with all understood diseases.

Malaria is produced by an animal parasite (discovered by Laveran 1880) belonging to the class protozoa, order sporozoa suborder hæmosporidia. It is a true animal cell with nucleus, nucleolus and cytoplasm. It has the essential vital properties of nutrition, growth and reproduction. It is capable of reproducing itself for a number of generations by fission which is nuclear division, the divided nuclei collecting the old protoplasm about them separate it into as many nearly equal parts as there are nuclei. The cell finally loses the power of selfreproduction and some of the cells (microgametocyte) become male cells (spermatozoa, or microgametes) while others (macrogametocytes) become females (ova or macrogametes) these two cells unite after the general type of union of spermatozoa and ova and form a new cell (zygote) requiring so far as we know a new environment before it completes its development. When taken into the stomach of a mosquito this fertilized cell, formed by the union of spermatozoa (microgamete) and the ova (macrogamete) and now called a zygote, enlarges, its nucleus increases in size, and the chromatin divides into many minute masses. These chromatic threads soon arrange the protoplasm of the cell about themselves forming a great number of small cells within the parent cell. The parent cell now 10 times its original size and full of as many as 10,000 new cells (sporablasts) is called a sporocyst.

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(1901)

Railway Injuries

WILLIAM B. MEAD, M.D., Oberlin

Railway surgery is of recent date. In reading the history and literature of surgery, I find no noted author on this subject. D. Hayes Agnes, Frank Hamilton and Dr. Brainard, gave other specialties to the world. Moses Gunn, under whose inspiring lectures I have often been moved, made no special mention of this branch of surgery. The dangers attending locomotion of any kind are apparent; but railway travel is especially hazardous and means to lessen the danger or ameliorate the injuries ensuing therefrom, are of the highest importance.

The progress of modern surgery is a marvel. One hundred years ago the most progressive physician would have declared it to be a visionary and vain thing to attempt to keep a man alive with a broken neck or fractured spine; to give hearing to ears deaf since childhood; to enable persons born blind, to read and realize the finest distinction of color, and those born dumb, to speak. To straighten the figure of the hunch back, which would have made Richard III more sightly in the eyes of Queen Anne; to change the whole contour of the face and give comeliness to those born in deformity; or to perform a laparotomy using the bistoury and the needle in the vital regions of the human body without causing death or giving pain. It is then but natural that railway surgery should, to some extent, feel the impetus given to all branches of surgery.

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(1901)

UNLESS another spell of serious hot weather interferes we expect to have some letters from the various departments of the Society. Doctors, like other people, object to doing any more than is absolutely necessary when the thermometer is over 100° in the shade. The President has promised to make some suggestions for the benefit of the society. We hope however that every member will consider these pages open to him and use them accordingly. That is what the JOURNAL is published for and we don't care to do any more of the writing than we can help. (1901)

The Present Status of the Serum Therapy

H. B. HOGEBOOM, M.D., Topeka

Due to the rapid advancement of the science of bacteriology together with the aid of the microscope, we know that certain diseases such as diphtheria, typhoid fever, pneumonia, scarlet fever, tetanus, and others, are caused from certain specific micro-organisms, or these particular bacilli throw off toxine which is the immediate cause. Through this valuable discovery certain preparations known as serum, or antitoxine, have been introduced as a preventive or immunization against these special diseases.

While all the diseases that I have mentioned are caused by a specific micro-organism, very few of these bacilli throw off their own toxine that have been discovered. However, this is not true with diphtheria, for we know that this disease is caused by the Klebs Loeffler bacilli, or the toxine thereof. We do not to-day consider that diphtheria antitoxine is an experiment or an uncertainty, but we regard it as one of the positive advances discovered in the practice of medicine, we no longer look upon this disease as one of the most fatal of all the infectious and contagious diseases for we are acquainted with its history as well as its highly contagious nature; and by the use of antitoxine, together with isolation, we no longer fear this dread disease. Thus we have diminished by the use of this valuable remedy, a disease at one time with a mortality of 40 per cent, to a mild disease of less than 8 per cent.

. . . . .

After the administration of the antitoxine it is wonderful to note the changes produced in the patient. Within twenty-four to thirty-six hours the swelling diminishes, temperature falls, membrane begins to disappear, pulse becomes slower and stronger, and in all the patient's general condition is much improved. The second injection is only necessary upon the recurrence of the symptoms, or as the severity of the case demands. While some have argued that the nervous system is impaired, and others have attributed death from the use of antitoxine, I have never noticed any bad result upon the nervous system, but on the contrary, believe it protects against diphtheritic paralysis. As to death being attributed to antitoxine, Dr. A. Seibert and Dr. F. Schwizer, of New York, after making numerous experiments upon guinea pigs, concluded as follows:

"First. That antitoxine does not seem to be capable of causing threatening symptoms and speedy death, even when introduced quickly into the blood current in very large doses.

"Second. The carbolic acid used in preserving the serum, they found must be in such a weak solution as to be entirely unable to cause the characteristic convulsions, or symptoms, in fatal cases. And the fact guinea pigs and other animals survive even larger doses of the acid proves that the acid could not have caused the death.

"Third. From their experience they had found that when small quantities of air injected into the body did produce severe disturbances and ultimate cessation of breathing in the animal, and these symptoms being analogous to those present in fatal cases attributed to the serum, these gentlemen concluded that death was caused by the introduction of air in a punctured cutaneous vein."

Out of 3,628 cases investigated by a committee composed of Doctors W. P. Northup, Hoyt, Dryer, and Adams, for the benefit of the American Paediatric Society, they only found three cases that could be attributed to the antitoxine, and these few cases it was not clearly proven that death was caused by the serum.

. . . . .

The amount of antitoxine to be administered varies in various cases, and I think should be governed by the character or severity of the disease, together with the age of the patient. Children under one year, where the membrane is confined to the nasal cavity, will tolerate 1000 to 2000 units. Older patients will tolerate a much larger dose, and in all cases injections should be repeated in from twelve to thirty-six hours as the recurrence of the symptoms demands, or if the symptoms do not subside.

While no secrecy exists in the manufacture of the antitoxine and all have given satisfactory and favorable results, it is essential and of the utmost importance that the highest quality may be maintained and not the greatest quantity with the cheapest process. This has not been my experience with vaccination, and I attribute the dissatisfaction and the unfavorable results, that no doubt some of you have experienced, to quantity and not quality. . . .

In regard to the progress, or advantages, in the antitoxine treatment of other diseases, other than diphtheria and tetanus, very few favorable results have been accomplished, and in conclusion will say that we are anxiously awaiting the day when we will have a successful antitoxine for every disease caused by a specific micro-organism, and especially do I allude to those dreadful diseases, carcinoma and tuberculosis. (1901)

[This is the earliest article written by a member of the Society who is still living.—Ed.]

The Business Side of Medicine

J. E. MINNEY, M.D., Topeka

. . . . .

In summing up the whole matter we believe:

That the business side of medicine is as important to the physician as the professional side.

That every physician has the financial ability to gain a competence and can do so by observing the following rules:

1. Collect every dollar possible at the time it is earned.
2. Make prompt collections of all accounts or know as soon as possible if they are worth looking after.
3. The physician must live within his income.
4. Save something from the earnings each month or year.
5. He should inform himself and make his own investments.
6. These investments should be made at home and be under his own supervision.
7. He should not buy of another through friendship for the chances are it will end in disaster to friendship and money.
8. The property should be examined before buying as carefully as the patient is examined before diagnosing the case and prescribing and his success will be as sure in the one case as in the other.
9. He should not sign his name to another man's note unless, First, he is able to pay the note; and Second, he is willing to pay it. (1902)

Smallpox

W. L. WARRINER, M.D., Topeka

. . . I wish to say a few words on the threadbare subject of smallpox. What I may say will in no way reflect on any member here as I have the greatest respect for every member of the society.

. . . . .

Soon after the Spanish American War there was spread throughout this country an epidemic of smallpox. It was not Cuban smallpox nor Cuban chickenpox, nor Cuban itch nor chickenpox but plain smallpox or variola. To be sure there were some cases of chickenpox prevalent at the same time as there always have been, especially among children. I cannot understand how any physician of fair intelligence can make a mistake in the diagnosis of a well marked case of either variola or varicella as has been so frequently done of late. Of course in early stages of either disease it may be difficult to decide but I am speaking of well developed cases. I was hasty enough to decide that a man with measles was developing smallpox which caused considerable trouble.

. . . . .

Now as to the difference on inspection. Chickenpox is characterized by the eruption of vesicles containing nothing but water or serum, it might be called; no pus being ever found in them and no pitting or umbilication present. Smallpox vesicles on the other hand may at first give the appearances of being but watery vesicles but later invariably contain pus and most of them become umbilicated. These differences I have never failed to find. . . .

Chickenpox vesicles contain no pus and collapse on pricking. Smallpox pustules do contain pus and do not collapse on picking. Chickenpox vesicles are not umbilicated while the majority of small pox pustules do become umbilicated. Have been interested in discussion of vaccination. I am a firm believer in vaccination. . . .

An instance in the first year of my practice in Ft. Scott, where I was fortunate enough to have had a large experience with smallpox, convinced me of the efficacy of vaccination.

Being called to see Mrs. K., a patient with a high fever and suspecting smallpox owing to the prevalence of an epidemic at that time, I immediately vaccinated the husband and little boy. At the proper time a vesicle appeared on the boy's arm but the father's did not take and in about ten days from the wife's first high fever he came down with smallpox. There the father lay with confluent smallpox nearly dead with the disease and scarred for life while the boy played about the same room perfectly well and with but one pustule on the arm, the vaccine pustule or vesicle.

I believe the present mildness of the disease is due to sanitary means and vaccination in the past. . . . (1902)

[This is the earliest article written by a member of the Society who is still in practice.—Ed.]

Response to Address of Welcome

J. W. RYAN, M.D., Coffeyville

Mr. President, Ladies and Gentlemen: I must confess that it was my intention when I came here this evening, to address you at some length, but regret to say that serious indisposition will necessitate the abbreviating of my remarks somewhat—a circumstance which will probably redound to my credit, and perhaps very much to your relief and advantage.

This is a time and place of my life at which I regret that I do not possess the silver-tongued oratory of the master minds of "ye olden time," in order that I might be enabled to fittingly respond to these kind words of welcome. However, in the name of the Kansas Medical Society I desire to thank you for your gracious words of welcome spoken here tonight. We needed no assurance, however, that this historic city would welcome us in the spirit of true hospitality—for *noblesse oblige*. We are glad to be your guests; glad to meet you within the shades of the grandest institution in the West—for much of the boasted enlightenment of the great commonwealth of Kansas streams from this radiant point.

We have come to your town, unheralded by the fanfare of trumpets or the roll of drums, for the Kansas doctor is a proverbially modest man. He is a "Weelum McLure" whom the genius of Ian McLaren has made human forevermore. He is fully abreast of the times in matters medical; he is a diligent student of the master writers of our craft, and in the shining pathway of their pens he finds his inspiration. He is familiar with all the recent developments in hæmology—and, under ordinary circumstances, is able to distinguish between malarial poisoning and *spina bifida*, without the blood count! He claims no priority in the matter of spinal anesthesia, has invented no new serum, and, so far as I know, has placed no new speculum on the market! He is, withal, a resourceful man, who sees his day afar off, and is glad. He brings to his work a mind stored with the great and fundamental truths of Nature; and the laws which govern her operations; a deep and reverent sense of duty in his ministry to the children of men. Such are the men who compose the great Society that meets within your gates tonight; men whose professional lives are governed by a rule of conduct of marvelous simplicity, comprehensiveness and elevation of spirit; a rule that was framed in transcendent wisdom by the great Father of medicine, and which has been the heritage of all the good and great who have followed in his footsteps. In the name of this great fraternity, I again thank you for the generous liberality of your welcome.

. . . . .

The heart seems to be about the only organ left to the general practitioner. In the language of Shattack: "I am not so sure that this organ will not soon be attacked, and we may hear of suturing the mitral valves." Some time ago I read the report of a Southern surgeon, who, for a stab wound of the chest in the region of the heart, believing from the symptoms that the heart had been injured, he deliberately removed a section of the 5th, 6th and 7th ribs, opened the pericardium and sutured an incised wound of the heart, the patient recovering. Neither the physician nor the surgeon can afford to confine himself to his special studies alone. There should be more frequent meetings on a common platform for the discussion of certain subjects or plans of mutual interest, they should consult oftener and be more in touch; the too often statement made by the physician, "Oh, he is an operator not a diagnostician," then would not be heard so often. It likely is true that the active surgeon is sometimes apparently more honored, gets a larger fee for what he attempts, than he actually deserves. But I feel that if the general practitioner were a little less conservative, if they held more frequent consultations with the surgeon, it would be much better for both. In some way, I do not know just how, the general practitioner should be brought into closer and more intimate relation with the surgeon, this is essential. The morbid changes which we term disease are not entities. Is this not equally true of some surgical conditions? Success in their treatment requires the combined efforts of both.

. . . . .

(1902)

THE Sunday edition of one of the leading daily papers in this vicinity usually displays a large picture of a doctor or two. Now, the question is, how do these pictures get into the daily press? Are they printed without the knowledge of the doctor or are they put in with his knowledge and paid for? Don't we howl furiously about the quacks doing this kind of advertising and point with pride to the Code? Verily, consistency, thou art a jewel of much fineness. (1902)

SO-CALLED health foods are multiplying at a rapid rate. One gentleman claims that he has invented one of the best. He was asked why he didn't put it on the market; he replied that all the good names were taken. Another gentleman met a friend on the street and noticed that he looked rather badly and inquired the cause. The answer came, "O, I suppose I have been eating too much health food." He no doubt told the truth. (1902)

[From By-Laws Adopted 1902]

Article X.

Section 1. A journal, known as THE JOURNAL OF THE KANSAS MEDICAL SOCIETY shall be published at least once each month and a copy thereof mailed to each member of the Society. There shall be set aside one dollar of the annual dues paid by each member of this Society for the purpose of paying the subscription price for each member of this Society and the President and Secretary of this Society shall draw warrants in the usual manner for the purpose of paying for such journal.

Sec. 2. The Editor shall collect all moneys due the JOURNAL on account of advertising and shall remit the same to the Treasurer. All expense accounts for the publication of the JOURNAL shall be endorsed by the Editor and shall be paid by warrants drawn in the usual manner signed by the President and attested by the Recording Secretary. (1902)

IN spite of the excellent results which have been reported from those using the X-ray in the treatment of malignant growths, there are features appearing which may greatly discourage its very general or extended application. Severe disturbances of nutrition, possibly due to absorption of the toxines resulting from the degeneration of the growth. At any rate death has resulted from the conditions following the use of the X-ray in some cases, not from the effects of the growth, but the secondary effects growing out the change produced by the X-ray. (1902)

[From Proceedings of 1902 Meeting]

. . . Dr. May introduced some resolutions which have already been adopted by many State Societies, "The Kyger Resolutions for the Abolition of the Newspaper Publication of Personal Medical Advertisements," which are as follows:

"WHEREAS, It can and has been shown, by ample statistics, that the American race is rapidly decreasing in its birth rate, thereby threatening ultimate and complete decadence of the race, and

"WHEREAS, Such decadence has become so apparent that it should claim the serious attention of those of influence and power to in any degree lessen this evil, and

"WHEREAS, Without a special effort to investigate, it must have been observed by the most indifferent with what flagrant violation of all sense of delicacy the public press gives place to advertisements of nostrums and means intended to prevent or cut short pregnancy, these advertisements appearing in a column of the paper set apart for such purpose under the name of 'PERSONAL MEDICAL ADVERTISEMENTS,' and referred to as 'Guarantees,' 'Sure Relief,' 'Sure Prevention,' etc., occupying in some Sunday editions of reputable papers as much as two columns destined to fall into the hands of all classes, and

"WHEREAS, We recognize the press as a most potent factor in the education of the masses: be it

"*Resolved*, by the Academy of Medicine of Kansas City, Mo., that we respectively recommend that a censorship over the public press should be exercised to the end of correcting such practice of publishing advertisements as those referred to in our whereases. Be it further

"*Resolved*, That it should be deemed of sufficient moment for the attention of the Post Office Department of the United States of America restricting or prohibiting the distribution of such papers, periodicals or magazines through the United States mail if they continue to so prostitute their columns with such matter." (1902)

THERE are some things about the medical law that seem a little unfair. According to the interpretation of the law as we understand it is held by the Board, a four-year course in medicine is the essential qualification for entrance to the examinations held by the Board. In lieu of one year of the four required, five or more years of practice will be accepted, but in no case will a course of two years be accepted as sufficient. A great many of the most prominent men in the medical profession are two-year graduates. Are these to be excluded from taking the examination if they so desire? There are good reasons for making these laws strict, but there are also good reasons for making them sufficiently elastic to admit those who are thoroughly qualified even though they may have been unfortunate enough to have graduated under a two-year requirement. Is not a long period of persistent study and experience equal to either two of the college years now required? (1902)

Medical Registration

G. F. JOHNSTON, M.D., Lakin

Medical registration is part and parcel of the methods and machinery of civilization. It has a very ancient history; according to Aristotle, the old Egyptians had a species of registration, by which, besides the protection of society from the ravages and outrages of quacks and frauds, they provided that, "doctors should not demand fees on a foreign journey, or on military service, when such patients were treated free of expense and the poor were treated gratis," by reason of the doctors being registered and carried on the public pay rolls. In the time of Hippocrates physicians were registered and the registration embraced a far more stately and formal ceremony than does any modern registration, notwithstanding our Kansas registration is bitterly complained of as being bound round with far too much red tape. Each registered physician in Hippocrates' time had to take and subscribe to the celebrated Hippocratic oath, a thing some modern doctors might do with advantage. All of ancient, medieval and modern medicine when studied in the light of history, shows some form of registration, though as variant and variable as March winds. But in all their various forms there was exhibited little or nothing of the most modern ideas and purposes of registration. . . . Now it is intended to establish a broad and universal standard of qualification for all practitioners, and to protect the lives and health of the entire body of citizenship. There is now a general and widespread movement in all civilized countries to execute the first duty of government, namely: to protect life and health in the citizen in return for the surrender of the citizen's inalienable right to life and health, to the keeping and care of the government. . . . The quacks and medical mountebanks in all ages have raised a loud clamor against all method of registration with qualification attachments, on the ground of taking away the personal liberty and so-called vested rights of the unqualified. In our own state registration, the whole body of complaint has been made by the unqualified. They have protested loud and long both personally and by paid attorneys against the restriction of their liberty to do as they pleased and to be employed by whomsoever might choose to do so, basing their spurious arguments on the ground that a vested right was being taken away, which could not be done constitutionally. . . . The first and supreme duty of government is to protect the citizen in everything that goes to constitute the general welfare of society; and the duty of government is as great in the matter of protecting its citizens against all health destroying agencies, as against murder, theft and arson. And that protection lies largely in instituting such a medical and sanitary regime as shall give the individual the benefit of all science, all art, all wisdom in the betterment of all the conditions of life and health. . . .

. . . when Kansas opened its eyes on the 22d of March, 1901, with a respectable medical registration law among its statutes it found the state overrun with the medical remainder from nearly all other states. It had become, almost unawares, the dumping ground for the professional refuse from nearly every state and country on the planet. We had not only our quota of educated and reputable physicians, but we had everybody else's quota of disreputable and disqualified mortals calling themselves physicians.

. . . If they had succeeded in palming themselves off on the public as "doctors" for seven years they were allowed to remain in practice, no matter how ignorant and unlettered they might be, no matter if they could by no possibility obtain a license to teach the alphabet and spelling book in our country schools, they still could obtain a license to practice the loftiest and most sacred calling among men, and the one naturally requiring the highest degree of erudition and wisdom known to the human race. The result was that over a quarter of a thousand licenses had by law to be granted to men who never entered a medical school for an hour's study. . . . The board has to deal with "all sorts and conditions of men," from the class just mentioned up to the most erudite university graduates. We have had not only the densely ignorant but the desperately dogmatic and malevolent kinds of men to deal with; also cunning, crafty, unscrupulous and downright dishonest characters. And we have also had a large contingent of highminded, well educated and honorable men as applicants. We have had the cautious and the careless men who looked to it scrupulously that every detail of the legal requirements for registration were complied with, and men who never yet have furnished acceptable credentials. . . . Bribes have been freely offered for unmerited licenses, while others have resorted to threats and storms of abuse when their demands were not granted. Lawyers by the score have been sent up to persuade or bully the board according to the temper or whim of the rejectees. And when one of these doctors was put in jail for practicing without a license, he appealed to the supreme court as was his right, but that court recently rendered its judgment sustaining the constitutionality of the law. As that law stands it is one of the best in the United States. Its standard of

requirement is as high as that of almost any state in the union. It allows the registration of only four year graduates or examinees who have taken four courses of medical instruction, the board having authority to make the examination as thorough and rigid as equity and good conscience will allow. And when the old crop of ignorant and incompetent practitioners dies off or moves away, Kansas will be one of the best regulated states in the union.

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Wherever our flag floats, there we have at least a fair form of medical registration and an honorable attempt at ideal standards of requirements. Hence the unification of methods and standards cannot be long delayed. In fifty years more there will be little, if anything, left to be engrafted on our system. That seems, perhaps, a long time to wait for a medical millenium, but other great movements of civilization and civic reforms have taken a much longer time. We can afford to work and wait in so good a cause. (1902)

Diphtheria

WILLIAM F. SAWHILL, M.D., Concordia

Very few diseases as we now know them have been described by the ancients, but some have existed from the most "ancient times." Diphtheria is one of these, and in writing about it we are only repeating some of the things that were said thousands of years since. Aretaeus, of Cappadocia, is said to have given the first good description of the disease under the name of "Syriae Ulcer." It was known at one time as the Egyptian sore throat, having existed in ancient Egypt. It has been called "Anginae Gangrenosa," "Morbus Suffocans vel Strangulatorious," and various other names. . . . Writers have stated that it was a rare disease in the United States until the latter part of the nineteenth century; but it has always existed, and was well described by a writer in New England in 1659, where a number of children are said to have died from "bladders in the windpipe." Diphtheria with a mild beginning has maintained a hold, gradually increased, and until recently was perhaps the most dreaded disease. The writer remembers an epidemic during his medical student days that decimated almost entire families. . . . We are now able to say dogmatically that diphtheria is an acute contagious disease caused by the Klebs-Loeffler bacillus. Anatomically there is a diphtheritic inflammation of the mucous membrane of the upper air passages and the pharynx. There is irregular fever, ranging from very high to absence or below normal. Great prostration is present, especially in the severe forms. Frequently we find albuminuria, croupous laryngitis, cardiac failure, and lastly paralysis of the throat. It is endemic and often epidemic. . . . The membrane in the inflammation of true diphtheria is a fibrinous exudate, . . . in the severer forms the membrane infiltrates all the layers of the mucosa with a tendency to produce necrosis of all mucosa and even the sub-mucosa. . . . The membrane is a grayish white color, about the color of buckwheat flour; as it becomes older it gets darker, sometimes becoming yellow or a dark brown. In some severe cases it becomes gangrenous with an offensive brownish secretion. The membrane begins on the tonsils as a rule in the form of small yellow patches; it soon spreads to the soft palate and arches, and the pharyngeal wall. . . .

The bacillus is found in the membrane and in the mucous structures immediately surrounding it. . . . The period of incubation is from two or three to ten days with the usual exceptions, as in the malignant epidemics it may not be over twelve hours. The disease comes on insidiously; the child feels weary—may be chilly and cold, head, back and limbs ache; may be some difficulty in swallowing, usually not much if any pain in the throat—thus differing from tonsillitis, follicular pharyngitis and kindred affections. Appetite is lost. When called to see a child with above symptoms, a physician will suspect diphtheria, and examination will often disclose the fact that the membrane already covers the entire visible portion of the throat. . . . These symptoms all vary from the mild form, where the symptoms are so slight as to make the diagnosis doubtful, to the malignant with all above symptoms in an aggravated form, including a rapid, wavy weak pulse, cold clammy skin, dry brown tremulous tongue, bleeding of mucous surfaces, and petechiæ under the skin. . . . In the beginning of the disease diagnosis may be uncertain except by bacteriological examination. The finding of the Klebs-Loeffler bacilli settles the doubt. . . . When we have several cases of supposed diphtheria in a mild form, it is important that a correct diagnosis be made, and that should be by a bacteriologist.

In the severe cases diagnosis is not difficult. The prognosis of diphtheria has wonderfully improved

since the use of antitoxin. Before this time the mortality was enormous, the worst form being the laryngeal. The bacilli in some epidemics must be very malignant, so poisonous as to cause rapid destruction of life, the strong and healthy succumbing as rapidly as the weaker. . . . In diphtheria after centuries of experience practically no progress had been made in the treatment until recently, when perhaps the greatest discovery of a pure scientific character in the whole history of medicine has been made, excepting only vaccination and that was more of an accident. Antitoxin has undoubtedly reduced the mortality of diphtheria to so great an extent that we are obliged to give it the first place and we should not waste valuable time nor risk life by delay in its use. Statistics are so favorable to its use that anyone who doubts should read.

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These statistics correspond closely with those observed elsewhere and seem a great argument in favor of antitoxin. It is doubtful if specifics exist in therapeutics at present but it seems we are certainly nearing that point, and yet some physicians and editors of medical journals oppose antitoxin. Some oppose vaccination. Why? They haven't investigated the subjects thoroughly. They make assertions but don't give statistics, they haven't studied reliable statistics from reliable hospitals and reliable physicians.

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(1902)

Ethics and State Legislation Controlling the Qualifications to Practice Medicine

GEORGE A. BOYD, M.D., Baldwin

. . . my purpose is to speak of ethics as it pertains to legislation affecting the practice of medicine.

As in individual evolution there is a reciprocal relation between the various part of the body so in society there is a like relation existing between its various parts. Difference of parts and functions necessarily postulates co-operation whether in individual or social life. The relative influence of any function is determined by its influence upon the whole organism and the obligation of the function. . . . In social life by a division of labor those performing the same function in society form aggregates which through their reciprocal relations to other groups become inextricably bound together yet always retaining a definite value. As the function of any group of workers in society varies so the obligations of society to the group vary.

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Ethics is the science which relates these parts according to their true values. Since all conduct is an expression of function, ethics is usually thought of from the side of conduct. Legislation defines by statute the relations existing in society between individuals, between individuals and the state, between groups of individuals, between groups, between the state and groups.

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In the recent past many new and important facts have enormously increased the usefulness of the medical profession. One shudders to think of the calamity that would come to the nation, state or city bereft of the protection which the group of medical workers has brought to it within the last thirty years. While the medical profession is not as great as its creator, our present civilization, it constitutes one of its most vital parts; and the individual unit, the doctor, whether he be teacher or practitioner, must attain a high degree of proficiency before he can bring to society the protection which the facts of the science of medicine as it exists today, places within his reach. Throughout the civilized world society assumes this protection as a matter of fact and acts upon the assumption. The citizen no longer fears epidemics unless he is uninformed or mistrusts his health officers. . . . These laws are the expression of an evolution already a fact. As soon as they find expression in a statute they become forces for or against our future, and are just subjects of our most careful criticism. . . .

Since our own law, passed in March 1901, has as its purpose the same end and is on the same general plan, and under similar social conditions as most of the other state laws recently passed, an analysis of its provisions and their validity according to the concept of ethics already mentioned will serve at least to bring before you our relations to society as defined by our legislatures. Chap. 99, Art. 9, Sec. 6669, provides for a board of examination and registration. . . .

Sec. 6,670, Art. 9, Chap. 99, defines the qualifications necessary to practice. For physicians already in

practice it gives four months from the time of the passage of the law to register by presentation and verification of their diplomas.

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Section 6671 defines the procedure and requirements for obtaining a license by those already engaged in the study of medicine at the time of the passage of the law and by those who after the passage of the law take up the study of medicine.

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It is astounding with what pertinacity dogma and pretense perpetuate themselves, and how the wolf can hide in sheep's clothing. If you were to ask the author of the above law to write a law to perpetuate dogma and give it the state's seal of authority he would only need add this one, "*provided,* That all persons engaged in the study of the science of medicine independent of dogma are barred from the provisions of this act!"

This strips the wolf of its sheep's clothing and leaves us to face our error and our shame; for it is our own garment in which we have so securely ensconced the animal that gnaws at the heart of science. Not alone in our own state but in all the states the recent medical laws give to dogma the same rights that they do to fact. The science of medicine includes all the known relations of cause and effect, their useful application, the facts of physics, chemistry, histology, anatomy, physiology and pathology of the human body. . . .

The greatest misfortune of our recent legislation is that it not only provides for members of each school on the board but also a different basis for the same function is recognized. Certainly the same questions of fact should have been made the basis of qualification allowing any school to ask such questions as the state of our knowledge might warrant. To attend an examination when homœopathic questions, allopathic questions and eclectic questions are made the basis of your fitness to practice medicine is an anachronism no less humiliating than a state teacher's examination when the questions in geography are arranged according to the "flat" or the "round" system. I am not unmindful of the forces which have brought about these results. Political methods are as open to men with wrong purposes as to those whose cause is right. . . . The regular profession having but little of the breath of science breathed into its every part has not seen the situation with clearness enough to meet the question from the high plane of equal privileges to all and special privileges to none.

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Medical education does not differ from any other education in its rudiments; and our public schools furnish that. A graduate of our public high school is competent to understand all but the most technical facts of scientific medicine. His education has been at least fairly carefully supervised. Now let the State provide that his professional education shall be as carefully supervised, and eliminate in the second year all students who show incompetency. First, provide that no medical school shall have a charter until it has furnished competent instructors, laboratories and equipment to teach physics, chemistry, anatomy, physiology, histology, pathology, bacteriology, materia medica and therapeutics and surgery, and then let the record of the daily work done by the student be the guide as to his ability to understand and to accomplish purposeful ends. Require a certain amount of this work—enough of it to demonstrate that the worker is competent—then give him a license to practice medicine. Put this supervision into the hands of a representative of each school of medicine elected by their state societies and to the teachers who have the daily supervision of the students' work. Examinations are an abomination, and greatly hamper the power to think and observe by the effort to remember. By such a stand we can eliminate the politician, place all on an equality, and provide for a real education consistent with the importance of our function in social evolution. (1903)

The display of vegetables, fruit and other eatables unprotected from dust of the streets by numbers of grocery men, which is in direct violation of the law, is as filthy as it is disease breeding. How easy it is for bacteria laden debris in blowing about to find itself a resting place upon the food stuffs and then being directly transmitted to the alimentary canal. Is it any wonder that there are so many cases of gastro-intestinal disorders of bacterial origin? It is plain duty of the sanitary officers to protect the communities from this danger, and that at once, without procrastination. (1908)

Our Journal

Some of our exchanges have been discussing the need and the field of state society journals. We have glanced over these editorials sufficiently to note that even non-society physicians admit the need of such publications. To us, however, the need seems twofold. First, the society journal is needed to uphold high standards of living and thinking among physicians. It can do this, because its purpose is not financial profit. It can be independent of degrading money influences either from nostrum vendors or self aggrandizing physicians. For these reasons the society journal may hold nearer the ideal than its private competitor. Secondly, the society journal is needed to present the matter of organization to the members of the profession within its district. Without aggressive effort successful organization is impossible, and one of the most potent factors in any campaign is printer's ink. Therefore the society journal is needed to keep before physicians their mutual obligations and common dangers.

That the first need is real is to be seen whenever one looks over the mass of "literature" that comes to the physician's desk under the guise of medical journals. Probably the greatest evil is that of running as original, articles in fulsome praise of some secret and proprietary concoction. Next in order is the advocacy of ignoble standards wherein money making is made paramount, and self-aggrandizement is praised. The prevalence of these evils makes necessary a journal as independent of foreign influence as the society journal is.

The field of the society journal is apparent from the foregoing discussion of the need. Our journal, as a type of the society journal, should publish only the best quality of matter; that is, the best that the physicians of the state can produce. This should include the results of study and research, as well as those of personal experience and observation. It should be the medium of exchange for ideas both on the practice and science of medicine and also the economics of the physician's life. This means that the individual practitioners should discuss freely in its columns their troubles as well as their successes. . . .

To carry out the above work will necessitate that we expend fully the one dollar per member appropriated by our constitution. Of course if ours were the only journal in the state it would be more nearly self-supporting, and we were very much pleased the other day to receive a letter from Dr. Purves of the *Wichita Journal* advocating the consolidation of three Kansas medical journals. The consolidation could occur only by making the resulting journal absolutely the property of our society and free from all outside influence. But until such consolidation is effected we must expect to pay for our journal just what we want it to be. Your editor has spent much time and thought and work (without salary) in looking up acceptable advertisers, but he feels that to deal successfully with advertisers he must be independent of them. Therefore he will go forward on the assumption that what is wanted is a good journal, rather than a cheap journal. The growing number of letters from his colleagues has strengthened his hands and he now feels that if he can only keep the JOURNAL growing until the majority of his fellow members awake to the fact that they have a local journal devoted to their interest. (1903)

The time is not far distant when this JOURNAL will eliminate its questionable advertising and follow the recommendations of the Council of Pharmacy of the American Medical Association. To compensate for the loss which will be sustained by this procedure, every member of our society should interest himself in helping to get reputable medical colleges, hospitals, sanitariums, medical book publishers, ethical pharmaceutical manufacturers, surgical instrument makers, etc., to advertise in its columns. You are stockholders in this JOURNAL and, as such, are interested in its welfare. By helping just a little, it will not be long until the JOURNAL can support itself by the advertising alone. (1908)

Unscrupulous Advertising

Perversion of the U. S. Mails

The boldest attempt at deceptive and fraudulent advertising of which we have personal knowledge recently came under our observation.

A gentleman purporting to be the representative of the Robinson Medicine Co., of Topeka, Kansas, called about six weeks ago at the office of the undersigned to lay before them the extraordinary virtues of a certain compound which he affirmed in a period of ten years had not failed to cure every case of diphtheria, tonsillitis, bronchitis, cankered sore throat and mouth, catarrh, hives, eczema, piles, earache, toothache, fresh cuts, burns, galls, scalds, pimples, warts, corns, bunions, syphilitic ulcers, running sores and all kindred diseases.

We were not interested as medical men in his statements. They were illiterate, unscientific, asinine. They were made with such a flagrant disregard of truth that our interest in the historical Ananias and Sapphira soon waned to be supplanted by a greater interest in this latter day monumental liar. History records that Ananias and Sapphira were struck dead for their sins. When this representative of the Robinson Medicine Company, and perhaps the medicine company itself, get their just deserts, we will read of the avenger having dealt similarly with them.

Before the above mentioned representative of the Robinson Medicine Company took leave of the undersigned, he handed each an ounce vial of medicine labeled as follows: "Anti-diphtheria for diphtheria and all throat diseases. Dose—three drops twice a day for two days. Swab to remove membrane. Never shake the bottle. Price $2.50 per ounce."

These bottles are yet in our possession with seals unbroken just as they were given us. The statement that we endorse and recommend these remedies is absolutely false. We know nothing of their component parts or effects, consequently could not use or endorse them. We have faith, however, in their utter inefficiency in curing the diseases named, and the educated physician who would add such compounds to his armamentarium must indeed be weak and gullible. (1904)

Constitution

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Article II.—Purposes of the Society

The purpose of this Society shall be to federate and bring into one compact organization the entire medical profession of the State of Kansas, and to unite with similar societies of other states to form the American Medical Association: to extend medical knowledge and advance medical science; to elevate the standard of medical education, and to secure the enactment and enforcement of just medical laws; to promote friendly intercourse among physicians; to guard and foster the material interests of its members and to protect them against imposition; and to enlighten and direct public opinion in regard to the great problems of state medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public, in the prevention and cure of disease, and in prolonging and adding comfort to life.

Article III.—Component Societies

Component Societies shall consist of those county medical societies which hold charters from this society.

Article IV.—Composition of the Society

SECTION 1. This Society shall consist of members, delegates and guests.

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(1904)

Business Chances

For Sale Cheap—One absolutely new Butler buggy, rubber tired, equipped with rain-or-shine top. This buggy has never been out of the shop. Write editor. (1909)

The Value of the Exact Determination of Blood Pressure in General Practice

O. P. DAVIS, A.B., M.D., Topeka

It is very desirable, for many ends, diagnostic, prognostic and therapeutic, accurately to appraise the vital activities of the body. By so doing, much that portends may be anticipated and sometimes averted or arrested in its course; or even if a dreaded event becomes inevitable, its shock may perhaps be mitigated and rendered less dreadful.

It is not enough that the practitioner should trust to his unaided senses for such important data. Such sources of information are, in the best and most astute observers, far from infallible. No physician would rely upon his temperature sense in the matter of estimating pyrexia. He no longer is content with placing his hand on a flushed brow and *supposing* the patient is feverish. Nor would the modern clinician, however skilled, venture to pronounce upon the character or degree of an anæmia on a basis of a mere inspection of the skin. The senses of touch and sight are not appreciative of small degrees of variation in their respective fields, especially when the varying objects observed are widely separated in place or time. This fact has given rise to the necessity of using instrumental aids to observation, with fixed standards and scales of measurement, wherever accurate determinations are desirable for comparison and preservation.

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. . . It is perhaps sufficient for the purposes of the present paper to briefly summarize the matter, reserving for another paper at some future time some detailed results of more extended personal observations than opportunity has afforded up to this date.

The normal maximum blood pressure averages, when lying at rest:

For children of 1 to 3 years .	85 to 95 mm.
For children over 3 years . . .	95 to 110 mm.
For adult females	115 to 125 mm.
For adult males	125 to 135 mm.

The mean arterial pressure is about three-fourths of the maximum.

A constant pressure of 150 to 160 should be regarded as suspiciously high. Various influences are active in modifying arterial pressure, such as posture, food, sleep, physical and mental work, psychical conditions such as grief, worry, etc. Several readings should be obtained and the average taken.

The high pressures are of special interest on account of being associated with diseases whose most dreaded symptoms are due to excessive strain upon the vessels. In uræmia and arteriosclerosis, pressures of 170 to 240 or more mm. are said to be the rule. In interstitial nephritis a high arterial tension is characteristic, and a lowering of the pressure is usually associated with improvement of the symptoms. In the diagnosis of kidney and other diseases in which the blood pressure is symptomatically changed, the accurate determination by one or the other of these instruments is a valuable aid.

As a prophylactic guide also such determination is of great value for it is very important to have the earliest possible intimation in advance of a break in compensation of affected organs, as in valvular diseases of the heart and in kidney diseases. Timely knowledge may postpone such an unhappy issue.

As a prognostic adjuvant, in acute as well as chronic cases, a series of observations by one or both of these instruments may throw great light on the probable endurance of that most important organ, the heart.

And finally, in a therapeutic regimen, the measurement of the action of drugs or other treatment, given for the effect upon the heart and arterial tension may be noted with advantage.

Nothing is to be said in disparagement of the educated touch and eye and accomplished instincts of the experienced practitioner. Many of the fathers in medicine acquire faculties in perception which seem to border on the supernatural,

> "And old experience doth attain
> To something of prophetic strain."

But they cannot always define or describe their observations, nor can they transmit their acquirements to their successors. And sometimes, even after, they differ among themselves about what they have divined. But the machine or the instrument of precision will seldom lie; and there is no more reason to continue relying on the individual judgment as to the tension and other qualities of the pulse than to be content with guessing that a person has or has not a fever.

And when such simple instruments and technique as are here to be exhibited are available, there is no reason why routine observations of arterial tension should not be practiced by every physician in appropriate cases, and even intrusted to nurses or other attendants, along with the clinical thermometer. (1904)

A New Method of Isolating Microorganisms

M. A. BARBER, M.D., Rosedale

The importance to bacteriology of precise methods of making pure cultures is well illustrated by the history of the researches on anthrax. In 1863 Davaine found that blood of a diseased animal containing the small rods would, when inoculated into another animal, cause the disease anthrax; and he was convinced that the rods, which he recognized as bacteria, were the true cause of the disease. But the objection was made that other substances were inoculated at the same time as the bacteria, and that one could not be sure that it was not some other substance with which the bacteria were merely associated which was the real cause. But when Koch in 1876 isolated the rods by means of cultures on gelatine, cultivated them for many generations outside of the body and showed that generations of the bacteria far removed from the original drop of blood were capable, when inoculated, of causing anthrax, the proof was complete. So in all investigations regarding the relation of microorganisms to disease, fermentation, or any change in organic material, it is of the greatest importance to secure pure cultures of the organism experimented with; for in ascertaining which of the various antecedents of the effect is the necessary one—the cause—it is often essential to try each one of them separately.

One of the first methods of purifying cultures was that employed by Pasteur in his researches on beer. This method, a physiological one, consisted in adding to the mixed culture of yeast plants and bacteria substances such as sugar which favor the growth of yeast, and tartaric or other acids which retard the growth of bacteria. By successful changes of the selective medium and the employment of temperatures which least favor the growth of bacteria, he obtained cultures of yeast free from bacteria. However this method did not secure a pure culture of a single species of yeast plant. In 1878 Lister obtained pure cultures of the lactic bacteria by so diluting a drop of liquid containing the organisms that, according to his calculation, a single drop did not contain more than one individual. Then of a series of flasks of nutrient medium, each inoculated with a drop of the dilution, he concluded that the flasks showing growth contained the progeny of a single cell. But one could not yet be certain that the cultures in these flasks came from one or more than one cell. So in 1882 Hansen devised an improvement on this method, and further, observing carefully his inoculated flasks, he considered only those cultures pure in which the growth began with a single speck in the bottom or on the sides of the flasks. This method, used in isolating yeasts, would not do for many kinds of bacteria, at all events not for the motile ones.

A very great advance was made when, in 1883, Koch published his improved method of isolating by gelatine plates. Organisms were diluted in gelatine in the liquefied state. When colonies appeared in the gelatine subsequently solidified and spread on a sterilized plate, it was assumed that each colony came from an isolated cell. But one could not yet be absolutely sure that such was the case; for a colony might well start from two individuals of different species which were not separated during the dilution. To avoid this difficulty, Hansen, working in 1883 with brewing yeasts, made small gelatine plate cultures on the surface of large cover glasses. These were placed over moist cells and sealed. A single yeast cell, well separated from its neighbors, was selected and its development observed. By this method one could be absolutely sure that the colony obtained came from the development of a single cell, and therefore formed a pure culture.

. . . When the writer of this paper undertook some two years ago the investigation of the individual variations seen among bacteria and yeasts, it was necessary to devise some new method of the selection and isolation of single cells. Such a method was worked out and a description of it is given here.

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I generally make selections under a two-thirds or a one-fourth objective with a one inch eye piece, though I have used higher powers successfully. After a little practice very little difficulty is experienced in holding the hand steady enough for this work, especially if it be steadied against the stage of the microscope or supported on a block. I have experimented with mechanical contrivances intended to replace the hand, but have not found them necessary. No great difficulty is met with in acquiring sufficient skill to use the method. Mr. Burrows, one of my students, succeeded in isolating spores of fungi after one hour's practice, and in isolating a yeast after three hours, without having had any previous practice with the method.

When a growth has formed in the droplet, it may be transferred to a test tube directly by means of a long pipette, or by discharging the cells into a drop of medium held in the platinum loop. This drop is then easily transferred to a test tube. I have also transferred the single cell directly to the surface of agar. (1904)

Department of Bacteriology, University of Kansas.

Trachoma, or Granulated Lids

EDW. P. PITTS, M.D., Atchison

The importance of making an early diagnosis, and the prompt institution of proper treatment in cases of trachoma, commonly known as granular lids, cannot be overestimated. By instituting prompt and active treatment, many of the distressing complications and deforming sequelae can be at least mitigated, and often entirely prevented, and the duration of the disease greatly shortened. As it is usually the general practitioner who first sees this affection, I take the liberty of presenting this subject for your consideration.

It is doubtful if any disease is more prevalent; no civilized race being exempt. Amongst the Hebrews, Chinese, Irish and Italians it is especially common, and in Egypt and Arabia it is an exception to find a native with sound eyes. In this middle west, where the population is made up to such a large extent of people of foreign nationality, this disease exists, even in the rural districts, to an alarming degree.

Bad air, over crowding, poor and scanty food and unsanitary surroundings, contribute largely to the transmission of trachoma. It is very probable that a contagium must be added to produce the disease. It becomes epidemic in residential schools, barracks, almshouses, prisons, etc., by transmission.

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Innumerable remedies have been used with varying degrees of success in the treatment of this disease. In the early stage with copius secretion, I find applications of solution of silver nitrate, in strength varying from one to ten grains to the ounce of water, most satisfactory. During the stage of hypertrophy, however, the application of the trachoma forceps, and the unmitigated sulphate of copper crayon, are required to affect a cure. The trachoma forceps, which are either roller or ring, at the discretion of the operator, enable us to express the contents of the trachoma follicles and trachoma granules, as well as to deplete the conjunctival tissue. Following the use of the forceps, the sulphate of copper crayon or a solution of silver nitrate in strength from five to ten grains to the ounce, should be immediately applied. It may be necessary to repeat the application of the forceps several times. The copper crayon should be applied at first twice a day, gradually lessening its frequency as the case improves. The same rule applies to the application of the silver nitrate solutions. Should corneal ulceration be present, this radical plan of treatment must of course be modified. In cases where the treatment just described is too irritating, I frequently resort to the application of a one to five hundred bichloride solution, rubbing same well into the conjunctiva with a cotton swab.

It is generally advisable to precede these treatments by instillations of a solution of cocaine or holocain, thus rendering them much less painful. That class of cases which is attended by symptoms of marked irritation from the first, requires preliminary treatment with cocaine, atropia, and hot applications before the forceps can be used.

In observing the above course of treatment, especially the surgical application of the trachoma forceps, with such variations as each individual case may suggest, this distressing and chronic affection may be permanently cured. (1904)

The Sheep and the Goats. The movement in the profession toward more thorough organization and the raising of our standard in drug giving and education is raising a tremendous row among those who are hurt thereby. If one wishes to learn the real feelings of those who have hitherto fattened on an unorganized and illy trained profession, one has only to read the *American Medical Journalist*. The bitterness and malice shown are appalling. Down in Texas where a state association journal has just been started, the private journals are doing their best to get up a row. In other words, the issue has been joined and the character of each journal is being revealed. We, in Kansas may congratulate ourselves that we have no vested interests to fight an altruistic movement such as ours for organization is.

The *Wichita Medical Journal* was owned by high-class physicians and was therefore willing to unite with the official journal. The same is true of the *Western Medical Journal* of Fort Scott. There is room in Kansas for just one journal and that should be controlled by the organized profession. The platform of this journal is simply to seek the best interests of the Kansas physicians. (1905)

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At Last: We have secured an "open" one fare plus fifty cents rate for the Topeka meeting May 9, 10, and 11. These excursion tickets will be sold May 7-10 inclusive, good for return leaving Topeka until and including May 14. The meetings will be held in the Throop Hotel. Chancellor Strong and the President of the Society will speak on the evening of the 9th. Topeka will be full of delegates and conventions at this time. It will be well, therefore, to order hotel rooms ahead of time. (1906)

The Fluoroscope

ED C. JERMAN, Topeka

One of the most important occasions in x-ray work is the fluoroscope. A fluoroscope consists of a wooden box, usually covered with black cloth and painted black on the inside. At one end of the box is an opening, lined with fur, so constructed, that it may be placed over the eyes so as to exclude all outside light. At the opposite end of the box is a detachable frame covered with a piece of black pasteboard. This pasteboard is coated upon the inner side with glue and before the glue is dry fine barium platino cyanide crystals are sprinkled evenly over it. After drying, the crystals are covered with a coat of varnish. When placed in position before an active tube, all the crystals become fluorescent. The pasteboard offers very little resistance to the x-ray light. If the fluoroscope be placed between the eyes within the field of an active x-ray tube and the hand be placed between the fluoroscope and tube a shadow of the bones of the hand may be plainly seen; the tissues of the hand are transparent to this light while the bones are opaque. The light passes through the tissues and every crystal becomes fluorescent except those that are immediately behind the bones. These remain dark. Consequently we see a true well defined shadow of the bones. The bones are not entirely opaque and a tube may have such penetrating power that the shadow of the bones will scarcely be discernible. The x-ray has the peculiar power of penetrating many substances that are opaque to ordinary light. For instance, wood, clothing, aluminum and paper. The metals are mostly opaque except aluminum. Lead is the most opaque of all substances to the x-ray light. The denser tissues of the body are more opaque than the less dense. For this reason the pulsations of the heart may be clearly seen. The lungs, in a healthy state, are transparent. In tuberculosis and pleurisy the diseased parts can usually be quite clearly outlined, as the diseased parts become more opaque.

The raising and lowering of the diaphragm can be clearly seen or both sides. The organs below the diaphragm cannot be seen with the fluoroscope. The bones of all the extremities can be seen clearly, also the bones of the shoulder. A metallic foreign body can be accurately located anywhere in the extremities, chest or shoulder. A bullet can only be located in the abdomen or pelvis of a large person, with the fluoroscope, when near the surface. A radiograph is generally necessary to locate a foreign body in the abdomen. Dislocations and fractions of the bones of the extremities and shoulder can generally be seen with the fluoroscope. A good fluoroscope in the hands of a good operator is of the greatest value as a diagnostic agent. A fluoroscope must not be kept exposed to extreme heat, dust or daylight or its life will be short. Always keep the open end of your fluoroscope closed with tissue paper or cloth when not in use and exclude daylight and dust. It is best also to keep it in a dark closet or case when not in use. Do not expose it to the hot sun or place it near a stove. The writer, in a very large experience, has found the failure to observe these points the cause of more x-ray trouble than any other one feature. The operator who does not observe these points wonders why his apparatus does not work like it did when first installed. He often blames the machine or the tube when the trouble is all with the fluoroscope. Take the proper care of your fluoroscope and it will always be ready and will give you the best of service for many years. The pasteboard containing the barium platino cyanide crystals is called the screen. (1905)

Editorial

The vicious practice of allowing a jury of laymen to decide the question of a person's sanity is certainly a relic of the dark ages. This system is in vogue in this State and to make matters worse no one is paid unless a verdict of insanity is reached. We should see the Representatives from our district and have them correct this evil at the next session of the legislature. (1908)

The X-Ray and Its Uses

MARTHA M. BACON, M.D., Kansas City

Roentgen or x-rays are generated in a vacuum tube, presenting a form of energy manifested in its action upon certain unstable chemical compounds, in which it produces chemical changes, and on certain salts, in which it produces a brilliant phosphoresence. The mode of transmission of this energy and its nature are matters of some importance, but of great obscurity. The cathode ray, discovered and named by Crooks, plays a very important part in the production of the x-ray. It is given off from the cathode, strikes the target of the anode, and is there converted into, and sent forth from the tube as the x-ray. The cathode rays are visible in a low vacuum tube, giving a blue or purple color. They act similarly to the ultra-violet ray and may be focused or deflected.

There are different theories as to the x-ray. Some claim they consist of a stream of hydrogen corpuscles, negatively charged, moving about 70,000 miles per second, causing molecular bombardment within a Cook's tube. Others say they are longitudinal vibrations. The generally accepted theory is that the rays are thrown off as particles from all highly heated and highly electrified bodies. The x-rays are invisible, and can not be reflected or refracted and act at site of entrance as well as exit.

The method of administration, dose, and application of the ray must vary with the object to be accomplished and the tolerance of the patient. . . . In view of its decided dangers, it is better to act cautiously, keeping upon the side of safety, even at an increased expense to patient for prolonged treatment. . . . The time of exposure may vary from two to fifty minutes, according to the condition, reaction and urgency of the case. The patient is carefully protected from the action of the ray with lead, tinfoil, etc., except an area about fifty per cent larger than the area involved. In mammary cancer, the axilla should always be exposed. A medium or soft tube is preferred for superficial conditions and a high tube for deep seated cases.

The reaction, which is the indication for withholding, or greatly diminishing the strength, consists in a tingling, itching, or burning sensation in the skin, slight erythema, slight turgescence, beginning pigmentation, falling of the hair, or a decided change in its appearance.

The value of the x-ray as an aid to diagnosis in bone lesions and foreign bodies, needs no mention here. Its use in diagnosis of chest diseases has not received much attention. In several clinics in Europe, an x-ray examination of the chest is considered as important as the observation of the physical signs.

There is on longer any question regarding the value of the x-ray in many classes of skin diseases. In lupus vulgaris most brilliant results have been obtained. Of acne, eczema, psoriasis, pruritis, sycosis, mycosis fungoides, senile keratosis, venereal condylomata, thousands of cases have been cured or treated with unusual success. In epithelioma the x-ray may be classed as a specific cure. The next class of cases most successfully treated is cancer of the breast.

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. . . The ray seems to exert a selective action on the pathogenic growth, and the process by which it disappears is usually one of drying and shrivelling, rather than of sloughing. The reason for this apparent selective action, while not altogether clear, is probably that the low vitality of the neoplastic tissue as compared with the surrounding healthy tissue, causes it to react more readily than the latter.

In masses which have fallen off following treatment by the x-ray and have been examined under the microscope, the cancer cells were found destroyed, when before treatment the microscope showed the cells most malignant and the clinical history had been one of rapid growth. . . . Surgery has its place and if combined with the therapeutic use of the x-ray, an agent of known power and selective action on the cancer cell a larger percentage of this class of cases will be spared to years of usefulness. Every case operated on for cancer should be subjected to the ray immediately after operation to prevent recurrence and metastasis. The ray also has a field of usefulness in the treatment of malignant disease preliminary to operation, when for any reason it must be delayed. In such cases it would doubtless be possible at times to inhibit the development of the growth and render less dangerous the delay. In exophthalmic goiter, x-radiation has proven very successful. In keloid, the ray gives better results than any other agent and it effects complete disappearance of the growth and its replacement by a smooth white scar. Diffuse keloidal conditions following burns are not so successfully treated. In leukemia, we have in the x-ray an efficient means of relief and in some cases of apparent cure.

The x-ray has its dangers as well as uses, and operators should take every precaution to protect themselves against this subtle force. But the experience of the pioneer workers in this field has made it possible to avoid that condition known as x-ray burn, or other breaking down of healthy tissue from the frequent exposure to the ray. (1906)

Diabetes Mellitus and Its Curability

C. C. SEABROOK, M.D., Burlingame

This disease, like many others, continues to be a mystery to the profession; but of late years we are beginning to recognize that it is, essentially one of impaired nutrition or metabolism. We are able to follow the several evidences of abnormal nutrition, and its effect on the general, as well as local (if such a term is permissable) health of an individual, but there we are forced to stop because we do not know of what that general functional activity of the cellular elements of the body consists of that are included under the general term of nutrition or metabolism, therefore the writer does not come before you with a specific, that will cure all cases of this disease; no matter what may be the idiosyncrasies of the individual; the remote or exciting causes, and environment; but he does offer you medical measures that in many instances of this, to many, dreaded disease, will completely arrest the process of disturbed metabolism and direct it into its normal course, and enable many of these cases to regain their normal physical selves.

More particularly, he wishes to call your attention to two or three clinical observations, which if they have been observed by others, it has never been his good fortune to see them in print.

As to cause; briefly, one late writer has claimed that its cause is specific, in the sense that it is one of the tertiary lesions of syphilis, and claims a record of 20 odd cases in which positive cures followed his special specific treatment, but that which he claims a specific treatment, is such only that it is a powerful cell tonic and stimulant to nutrition. And all plans of treatment that are successful in favorably modifying the progress of the disease, will be found to be one that materially stimulates nutrition, and it is by this means alone that this disease can be, or is, cured. Another close observer has made mathematical calculation of the quantity of food each diabetic should take, based on the output of sugar; but this does not modify, in any degree the course of the disease.

As to the cause of this peculiar disease, we are just as much at loss today as in the past, excepting that we know that certain exciting causes will bring it on in many cases. Such as severe nervous shocks, trouble of one kind or another will develop it in some individuals. The writer has personal knowledge of an instance in which a patient died on the operating table under circumstances which profoundly impressed all of the professional gentlemen present; one of whom developed diabetes within one week, and others later. Beyond this we know little, excepting as stated, it is essentially a disease of impaired nutrition. We do not know whether there is a specific toxin; a specific germ or an organic structural lesion of some central control, as in the base of the fourth ventricle; or impaired nerve stimuli of the organs of secretion. No amount of speculative theorizing enables us to deceive ourselves into thinking we know more; nor will the writer endeavor to induce you to think he possesses more definite knowledge.

Dieting never cures. It has never been my good fortune to see a case that was more than temporarily relieved by dieting. But the writer has seen cases who were positively injured by a too strict diet. And there can be no question, clinically, but that some individuals require more carbonaceous food than others; while others require more. . . . (1906)

Who Attends Medical Societies?

This question is easily answered. It's the busy, wide-awake men of the profession. Yet we often hear doctors say, "O, I am so busy I can't find time to go," and yet they overlook the fact that the busy doctor is the society man in every community. Reverse the order and you have it this way: The medical society man is the busy doctor. Why? Because he is abreast of the times, and when he goes away to attend the various medical societies to which he belongs his patrons know that it is for their good, and hence his practice is largely increased. The medical society is the place to go if you wish to come in contact with the best and most advanced ideas in the profession. It is next to the postgraduate school in keeping polished and in accord with the very latest and best in the science of medicine. In another way it may be considered an outing, as you are away from the hum-drum of your every day work, which makes it restful and you go back to your practice refreshed mentally and physically. (1902)

A Kansas City, Mo., M.D., claims that he was chloroformed by one of his fair patients and separated from his cash to the tune of $135. How delightful it must be to have a fair young anesthetist take your cash in a scientific manner. Contrast this with the uncouth, untutored footpad who clubs his victim into insensibility and you will no doubt accept the new way. This "painless extractor" method should become very popular. (1902)

Venereal Disease

(A discussion suitable for handing to the laity.)

Because one quarter of the population of such cities as Paris, Munich, New York, etc., are or have been affected with veneral disease, because 40 per cent of barren marriages are due to gonorrhea, because venereal disease is determining who shall constitute the future generation of this nation, it is needful for the laity to learn at least the elements of the disease.

Venereal disease is of two distinct forms, the one local, the other constitutional in its effect on the body. The local disease is gonorrhea, the constitutional is syphilis.

These diseases are as old certainly as civilization and mark the effort of man to rise above the beast, for wherever moral degeneracy is most abundant, these diseases reign. Gonorrhea is caused by a diplococcus (gonococcus) which is able to set up an inflammation in mucous membranes. It then burrows in the pits and glands of the membrane and is practically ineradicable. Its symptoms are swelling and profuse discharge of pus. These symptoms subside so that in the chronic form there is only a watery discharge now and then, with only slight tenderness and inflammation. Of course the disease attacks chiefly the genital organs, though cases are found where the mouth, nose and rectum are the primary seat of the disease. In the male the germs work their way upwards to the glands and the bladder, and may reach the blood to set up acute inflammatory rheumatism of the worst type. When the germs reach the glands sterility is the usual result. At any rate these germs will lie dormant for years only to be aroused by some weakness or excess and then they would be transmitted to the innocent wife, to make of her a semi-invalid.

In the female the germs do not cause so much pain and discomfort, but they do even more damage, because they settle in the glands and tubes of the genital tract and result in barrenness on the one hand, and in frequent inflammations and abscesses on the other. A very large percentage of the gynecological surgery is made necessary by gonorrhea. Hence for the woman the after-effects are even worse than for the man.

Syphilis, on the other hand, causes very little local disturbance—a mere sore or ulcer at the point where the virus enters the system, but after two or three months the body breaks out with coppery papules and similar eruptions and we know that the whole body is affected. Still later tumors appear in the mouth and nose, for instance, where they break down into ulcers; in the brain and nervous system, on the skin, or in the internal organs such as the liver. Hence years after the disease first appeared one may see its effects in the way of a locomotor ataxia, blindness, insanity, or other sore affliction. It may be transmitted to the children (if it does not cause abortion or death of the unborn fetus) and thus carry the curse to the second and third generation.

Persons suffering with gonorrhea or syphilis should of course sleep alone. Their beds should be made with the hands protected by gloves or thoroughly aired without handling until all stains are thoroughly dry. The towels and wash cloths should not be used by any one else. The virus is infectious only when not entirely dry, hence in only a few cases is the trouble communicated except by sexual intercourse. Hence also the disease points to unholy living with all that this expression might mean. Naturally therefore venereal disease will continue until prostitution ceases, and prostitution will continue until the race is regenerated and learns that continence is not unhealthy and that the same law of purity holds for man as for woman.

One of the greatest evils resulting from gonorrhea is the infection of the eyes of babies. This may occur during birth or from the unclean hands of the caretakers. More blindness is probably due to gonorrhea than to any other one disease. This infection of the eye demands the most active as well as the most skillful treatment.

It is the duty of every right minded person to spread the principles of personal purity, and the knowledge of the evils of prostitution and fornication abroad wherever his influence is felt. (1907)

Of what value is a medical society? By the attendance at some of the meetings it could be answered with one word—none. Some men think that it is a waste of time and frequently offer the excuse that they are too busy to attend. In answer to this it can be truthfully said that the busy doctor is the most regular attendant. He cannot afford to miss, because it is recreation, because there is much to be learned and he would be doing his fellow-men an injustice if he did not endeavor to keep abreast of the times. There are so many reasons why medical societies should prosper and so few why they should not—but what's the use. (1910)

After owning an automobile 30 days one is constrained to believe that it is necessary to suffer with autointoxication, autoinfection and autotoxemia to ever think seriously of owning number two. (1909)

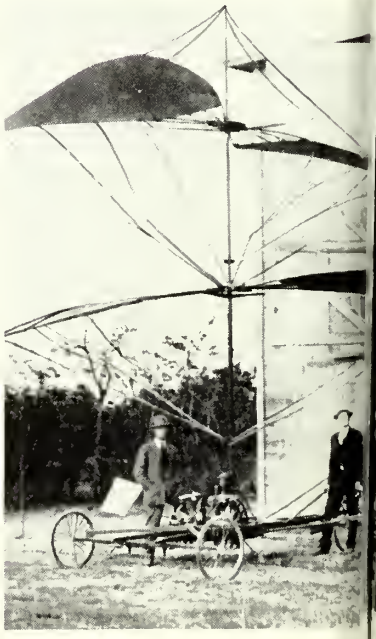
—The Days Of World War One, and, "Back To Normalcy"

Suffragettes, Topeka, about 1912.

Carrie Nation (without her hatchet), 1901.

Hutchinson to Kansas City—303 miles at 37½ M.P.H.

Typical road drag of era 1900-1910, Lecompton.



A would-be flying machine ma Goodland, 1910.

In The Dawning Of The 20th Century

Jess Willard, world's heavyweight champion, about 1918.

Dickinson County farmers with new cars, about 1911.

G.A.R. escorting World War I draftees, Minneapolis, 1918.

egistration Day parade, Topeka, 1917

R.F.D. wagon and first carrier out of Berryton, in early 1900's

Special Announcement

Advance in the Requirements for Admission to the School of Medicine

From the beginning of the University, the establishment of a medical school has been contemplated when the conditions were such that it could be done on the same thorough basis that had characterized the foundation of the other schools of the institution. In pursuance of this plan, the medical work of the first two years was organized and put upon a definite basis in 1899. As Lawrence did not furnish sufficient clinical or hospital facilities for the last two years, this was postponed until a suitable opportunity offered itself. This occurred when Dr. Simeon B. Bell, of Rosedale, Kansas, gave the University money and property sufficient to build and equip the necessary laboratories and hospitals, and, by the merging in the University of the Kansas City Medical College, the Medico-chirurgical College of Physicians and Surgeons of Kansas City, making it possible to give the full four-year course for the first time in the college year of 1905-'06.

In the meanwhile the work of the first two years has gradually grown since 1899, in conformity with the advances that medical education is making in this country. The laboratory equipment and library facilities have been increased as fast as the funds became available for such a purpose, until at this time the work is well established and the equipment such that the work can be satisfactorily given.

The new buildings at Rosedale are built to conform with the most advanced requirements of medical instruction. Special laboratories and facilities have been provided for investigation along various lines of medical work, so that it is now felt that the medical instruction given here compares favorably with the other schools of the University and the older medical schools of the country.

In this growth it has been found that, here as elsewhere, this increase in the complexity of the medical course demands an increase in the ability of the student to grasp facts as they are presented to him even from the first. It also requires the more or less complete elimination of certain subjects from the regular medical course.

This advance in medical education has been almost entirely along the lines of more laboratory work and work of greater exactness, while from the standpoint of instruction it means fewer and fewer lectures and more and more individual instruction and individual effort on the part of the student.

It is realized more and more that, in order to give an effective medical education, the student must have a thorough grounding in the various subjects covered by the general terms of anatomy, physiology, and pathology. These subjects are taught almost entirely in laboratories and by laboratory methods, and, for the student who has never been taught to use his hands and powers of observation, this is so new to him that it is almost the end of the first year before he begins to comprehend what is offered to him.

The student who has had but a high-school education finds the great mass of medical literature in German and French closed to him, and when it is considered how very valuable this is, due to the fostering of laboratories and libraries that are used for research by the governments of those countries, it means a very great loss to him.

The public and the profession, as the country grows older and medical knowledge increases, are both demanding more knowledge and a wider information on the part of the physician. The physician of the future must be a man who is able to do more than treat diseases. He must understand the underlying principles of his profession and be ready to serve the community in which he lives, and perhaps it will be his privilege to serve it most efficiently through that greatest and most actively growing field of applied biological science, viz., preventive medicine.

In recognition of these demands, the officials of the University have decided to raise the requirements for entrance to the medical school to one year of approved college work in September, 1908, and probably will soon increase them to two years of approved college work.

With the requirements thus raised, it will be possible for every student to obtain the bachelor's degree at the end of the first two years of medicine, as is now arranged for in the combined college and medical course, requiring six years for completion. This preliminary college work should be so arranged as to give the broadest bearing on the studies which are to follow in the medical school, i.e., subjects which will enable the prospective student of medicine to work effectively.

These two years of college work should include the following studies, with more or less modification to suit individual needs and the institution in which the student is taking this preliminary course: Two years of work in chemistry, with laboratory work, covering

inorganic and organic chemistry well. One year of work in physics, with laboratory work, if possible. At least one year of biology, with laboratory work. This should be zoology or comparative anatomy, if it is possible to devote but one year to it. All of the English, French and German that the student can obtain. In fact, it is felt that this side of his preparation is of but little less importance than the work in science.

The Dean of the scientific department will be glad to discuss and advise prospective medical students as to their preliminary work, and in this way provide for its being arranged so that the student will be best equipped to do effective work upon his entering the Medical School. (1907)

Automobiles in Country Practice

L. REYNOLDS, M.D., Horton

The time has not yet come, when from the standpoint of economy, every physician can adopt the automobile in his practice. I predict that within the next five years, prices will more nearly approach the cost of production. In my opinion a machine can and will be built for five or six hundred dollars with ample power, strength and reliability for a physician's use. It can scarcely be said that such a machine is on the market.

When this time comes this fascinating method of transportation may be considered as a competitor of the horse with due reference to economy. When contemplating the purchase of an auto, I subscribed for a journal several months in advance and read carefully all the information it contained. I also interviewed frequently owners of machines. This theoretical information was of considerable practical value when I came to use a machine. The anatomy and physiology of the thing is very important if one expects to acquire efficiency in their management.

I would not advise any one to purchase an auto who does not endeavor to take the main care of it himself and learn all the adjustments.

Other questions to be settled are:

Shall the machine be an air or water cooler?

Shall it be a steam, gasoline or electric?

Shall it be single or multiple cylinder?

Shall it be a chain or shaft drive?

Shall it be solid or pneumatic tire?

First. The air cooler machine requires a good deal more oil than the water cooler, which it burns, causing the carbon deposits in cylinders which in time require cleaning out or they lose power. This I learned from an owner. The main drawback of the water cooler engine is that in cold weather freezing may occur, breaking cylinders or radiator. This can be avoided in two ways, one to use a solution that will not freeze and the other to draw off the water at the end of each trip, putting in a quart or more of wood alcohol to keep from freezing any small amount of water that might not be entirely drained off. As three or four gallons is the usual amount of water required, it runs off in about ten minutes and requires but little time to replace. Have tried the above and where trips are not too frequent, prefer the latter method. My judgment is that the average user will be better satisfied with the water cooled engine.

Second. Those I have known to try steam, have abandoned them; the electric seems to lack power for hills in country roads, besides outside of the cities they cannot be properly charged. They have the advantage of very quiet running.

Third. The single cylinder seems to be going out of use as multiple cylinders give more regular impulses, causing less jerking and vibration. Four cylinder cars apparently promise to give most general satisfaction.

Fourth. Chain driven machines seem a little less expensive to produce but make more noise; the chains collect dirt and wear out links, losing power or occasionally jumping off the sprocket wheels. Experience seems to be popularizing the shaft drive.

Fifth. The liability to the puncture of the pneumatic tire has led some to try the solid tire, but the greater jar to machine and occupants has been a greater objection than the occasional puncture. One can carry an extra inner tube which can be made to quickly replace the punctured one and cause but little delay. I have had but one puncture in a year, so I do not regard a puncture as a serious or troublesome accident. The larger the tire the less liable to puncture, owing to greater thickness. Think my three and one half inch tires will easily last me two years without retreading.

If you expect to purchase and use an auto without grief, you will be disappointed. I have a friend who has had nine machines extending over as many years. He says the fellow who says he never has any trouble is mistaken—no matter what make he uses. Everyone takes some chances in learning to use them.

The only way one can do any harm with a gasoline auto is to run into something, as they never explode.

There are plenty of chances, however, of running into ditches, buildings, stone walls, etc. There are several things to think of at the same time and until one has formed the habit of running he may omit some important manipulation at a critical moment.

A little sand, dust, rough or muddy roads cause rear wheels to skid, especially if running fast, thus throwing the machine quickly and squarely across the road. A beginner should always run slowly until all liabilities are discovered and understood.

An object of some seriousness is the danger of frightening horses. Lack of reasonable care on the part of some drivers of automobiles has created a good deal of prejudice against them in rural districts. Unless users use due caution this influence is liable to react on them and result in unreasonable legal restrictions. Common decency and regard for the welfare of others ought to influence us to cautiously avoid scaring either teams or drivers, for the latter are more often scared than the teams.

The Kansas state law regulating automobile speed is a reasonable one and if we avoid unreasonable local restrictions by town councils we have nothing objectable in this direction.

The very general use of automobiles has now accustomed many horses to them and people are more careful about taking wild horses on the roads. In our own neighborhood we soon learn to know the safe and unsafe horses, so we may act accordingly. In one years' running I have never caused a runaway or injury. The only trouble I have had was in passing wild horses that were standing hitched and no one near to take care of them. Two different horses have broken loose without doing any harm and a third was a wild colt which had been carelessly hitched, kicked itself loose from a sulky.

An arrogant independence has been very noticeable on the part of the makers and dealers. In consultation with other owners I find makers very generally fail to make their promises good. This has been my experience. The demand has been so great and the prices high, that makers have not been as careful in construction and material as they should.

In the satisfaction one gets when his machine works well, he is apt to forget any annoyances he has had and is liable to give any prospective purchaser a too sanguine idea of their ready utility. Any one of five points when out of adjustment may balk the whole machine. These points are the spark plugs, induction coils, battery, commutater (the timer) and carbureter (the mixer). It may seem very mysterious sometimes what is wrong, but time and experience usually enables us to make a diagnosis. When this is done the treatment is generally easy.

The new user gets a good drill in self control as he is apt, when his machine balks, to have such volunteer remarks as, "Hello Doc, broke down," "Try twisting her tail," and others of similar import.

I would not recommend an auto to a young single doctor to promote his interests with his best girl, as his attention is apt to be too much divided to do justice to either.

Never run fast in narrow places or near ditches. Wide level fields are good places in which to take first lessons. After reasonable efficiency in their management is attained, one should be able to average fifteen miles per hour, safely and easily, on good roads. Twenty miles per hour is easily made on good, level roads. An intimate knowledge of electricity will be of great utility here, more than anywhere else in the private practice of medicine. Some things: lubrication, steering and control must be learned mostly by experience. Many makers give very inadequate instructions to purchasers. One should learn before purchasing, something of the significance of cylinder, diameter and stroke, compression and cycle. Power and weight should receive careful consideration, the former is usually greatly over estimated and the latter is much under stated. For instance, my machine was listed at 1500 pounds, and weighs about a ton, while its power is placed at 18 horse power, when I think it is more nearly 10.

A good machine may be used eight or nine months during an average year in the country and nearly the whole year in paved cities. Think the expense, aside from depreciation in value, need not exceed fifteen dollars per month for all supplies and repairs after one has learned all ordinary adjustments and can take care of the machine himself. I consider a half hour of work daily, during their use, necessary to keep them in good running order. To me this is mostly diversion and amusement.

One who has no mechanical ability and cannot acquire any, may not find an auto a good or satisfactory investment. I use dry cells for battery and carry an ammeter (dry cell tester) with me so I may anticipate exhaustion of cells in time to renew and avoid being stranded away from home.

They may be used in considerable mud but not many volunteer to take them out in mud, except to run home when caught out in the rain. Progress is rather slow and hard on the machine, besides it is considerable work to clean off the mud.

I always feel lonesome without my machine and would not do without one at much greater cost. (1907)

Even though the automobile has caused a number of fatalities and shortened the lives of a number it has become a boon to the doctor. Many an hour heretofore spent in driving the old "nags" can with the help of the auto be spent at his fireside in study and rest. Mr. Auto we hail thee not for the former reasons but for the latter. (1910)

Local Anaesthesia

MERVIN T. SUDLER, M.D., Ph.D., Lawrence

All of us who have had occasion to use an anaesthetic of any kind realize that the perfect anaesthetic has not yet been discovered. We do know, however, that our knowledge of their use is increasing and that many improvements have been added in the last few years. For instance, the present method of giving ether by the drop method is certainly an advance. Spinal anaesthesia has been tried and is apparently rapidly assuming a place where it will be recognized as a relatively safe and efficient way of removing pain in certain kinds of operations.

Local anaesthesia had its beginning when cocaine was first discovered, and as you all know synthetic compounds have been produced from time to time all of which are claimed by the manufacturer to be superior to any other yet known. The methods of using these compounds have also undergone striking changes. In the early days a strong solution of cocaine, usually four per cent, was applied to a mucous membrane and local anaesthesia was obtained in this way. Later the hypodermic syringe was used and it enabled us to dull the sensation of a larger area. But if over a half grain of cocaine is used, disagreeable symptoms occasionally ensue.

We know that the sensation of pain in any superficial part of the body is dependent on nerve cells relatively distant. And that if by use of chemical or physical means we can block or prevent a nerve fiber from carrying the impulse that pain is not produced. If we inject enough physiological salt solution or even sterile water in the tissues around a nerve filament we produce enough disturbance of some sort in that fiber so that it is blocked and impulses do not pass, even though there is no chemical reagent present to act directly upon it. Gant of New York has made use of this principle in operations on the rectum, and uses only sterile water. Apparently in this region of the body with a great deal of connective tissue this form of anaesthesia is unusually successful. Sleich made use of it and his formula has been successfully used for over ten years. That from these examples, the principle of using local anaesthesia for relatively large areas lies in the fact that we surround every nerve filament with a solution containing a sufficient amount of the reagent to block it. Mr. Barker, Professor of Surgery in the University College of the Hospital Medical School, in a recent article reports the use of this solution in 22 cases of goitre. And he has used as much as seven ounces of the solution without causing any ill effects, and he reports that in his cases that the pain was satisfactorily done away with and that an assistant of Kocher who was present said that the anaesthesia produced by this solution was very much more satisfactory than obtained in Kocher's clinic where a small quantity of cocaine solution alone was used. For introducing this solution into the fascials planes in the vicinity of important blood vessels and other important structures he uses a round pointed needle with an eye on one side. He also says that it requires from thirty to forty minutes to obtain the full anesthetic action of the solution, and it is his custom to infiltrate the skin and puncture it in various places and then introduce the solution into the lower part of the structures to be operated on by means of this blunt needle. I have not found it necessary to wait so long a time. I have found this special needle and syringes which I had made from his description to be of great service however.

In using this solution I have found the success depended upon making it carefully and making it fresh for each operation. Then infiltrate massively. Using from one to two ounces well distributed through the skin and tissues under it. After this is done cutting, pinching and a certain amount of blunt dissection causes no pain whatever. If traction is used or tension is put on tissue outside of the infiltrated area then pain results. So this method is not practical for operations where great retraction is necessary. As for instance an appendectomy, although cocaine has been used by Mitchell for operating on typhoid perforations. The class of operations for which it seems to be best adapted are those for the radical cure of inguinal and femoral hernia, varicocoele, hydrococoele and phimosis.

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In exopthalmic goitre and in ordinary cystic goitre it certainly reduces the danger of the operation to the minimum and Keen's recent system of Surgery advises general anaesthesia only when it is impossible to use this. In any of these operations a syringe holding at least ten cubic centimeters and the blunt needles are absolutely necessary for success.

I do not claim that in these solutions we have a perfect anesthetic; neither do I claim we have one which will do away with ether, chloroform or other anesthetics. But I do claim that by this method we can do certain operations with safety where a general anesthetic would be dangerous, and often without pain or very slight pain, that we can do hernia operations, hydrocele and varicocele and phimosis op-

erations without pain and with a minimum amount of discomfort to the patient and a maximum amount of recovery in view for him. Like every other surgical method the more one uses it, the more skill is acquired and the happier the results. It is a method where utmost care must be taken at every point, and I would not recommend it to anyone who is slipshod or careless in his technique. On the whole it is harder to use than to operate under a general anesthetic, for it takes longer, and takes more care. Ordinarily I am much more fatigued from an operation of this sort than from the other. But where an expert anesthetist cannot be had and in the class of operations I have outlined I believe that it will prove of great service to the medical profession. And if it comes to be generally known and used, I believe we will reduce the business of the truss manufacture to a very small percentage of what it is at present. (1908)

Should the State Maintain Sanitoria for Tuberculous Patients?

J. A. MILLIGAN, M.D., Garnett

In the complex sociology existent at the present time in civilized countries certain duties are recognized as falling upon society at large and are therefore assumed by its representative, the State. Among such duties some of those particularly interesting to us as physicians may be mentioned, as the support and education of defectives, mental or physical, such as imbeciles, epileptics, the blind, the deaf and dumb, the insane, for all of which expensive institutions are everywhere maintained. Then we have maintained by counties or municipalities hospitals for the sick and injured, and for those afflicted with contagious diseases, not alone for their own benefit in the way of better care and treatment, but for the protection of the community.

Tuberculosis has been recognized in late years as contagious, and as the disease is generally very long lasting, is much more amenable to treatment than was formerly supposed, and as its spread may be and has been easily checked under proper regulation, many states have appointed commissions for its investigation and for the establishment of properly located sanitoria for its sequestration and treatment. This would seem to be a duty more properly devolving upon the state than upon the city or county, by reason of its great cost, and for the further reason that climatic and sanitary location is especially to be desired, which could not be secured in every town or county.

The mortality statistics of the Great White Plague would be appalling were it not for the promising fact that in the last twenty years, by reason of the better understanding of the disease, there has been a very great decrease in the death rate. A few years back from one-tenth to one-seventh of all deaths were attributed to consumption, but already prevention and cure have made marvelous strides. In the 1907 report of the Massachusetts commission on tuberculosis, find that in 1875 there were 5,800 deaths from tuberculosis in that state, that being at the rate of nearly 35 per 10,000 inhabitants, whereas in 1905, thirty years later, only 4,600 or about 16 per 10,000 succumbed to the disease.

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But the saving of from forty to sixty per cent of those already afflicted with tuberculosis is but a small part of the work accomplished by these sanitoria. The great danger of infection from association with a consumptive has been fully established. A patient housed up in the ordinary modes of life common to the poorer classes of people is almost certain to infect from one to five other members of the family, and to leave about the premises enough bacilli to continue the contagion as long as the life of those germs endures. The removal of this patient to a sanitorium as soon as it is determined that he is a consumptive, not only gives him a better chance of being cured, but it at once stops all danger of these other persons contracting the disease. It has been demonstrated that the removal of a babe born of a tuberculous mother from her care and presence will save it from contracting the disease, and how many babies and children do we find in these nests of contagion crawling about the floors and inhaling the infection with every breath.

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The title of our discussion is, should the state maintain sanitoria for tuberculous patients? If the word state is used in its broadest sense signifying the government or the nation, probably that would place the duty upon the right shoulders. It is too large an undertaking to be handled by a community or one of the

federal states, but must be borne in part at least by the nation. Probably each one present may have recently received some literature from the Committee of One Hundred on National Health, which is struggling to have a department of health established in the Cabinet.

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The subject of tuberculosis is perhaps the most important before the medical profession, for the reason that it is the most promising in the line of prevention and cure and is so universal in its application. Vaccination has nearly annihilated small pox, the extermination of certain mosquitoes bids fair to blot out malaria and yellow fever, antitoxine takes much of the dread from diphtheria, but all these terrible maladies together never claimed a tenth part of the victims that consumption sweeps off the earth. The size of the army of consumptives and the success which has attended the efforts at prevention and cure in the light of modern research, render this one of the most important subjects which can be considered, and would seem to impose upon town, state and nation the duty of providing suitable hospitals for the care of these patients and a system of reports, supervision and instruction for the prevention of its further spread. (1909)

The Goat—Now Laugh

J. E. MINNEY, M.D., Topeka

The goat has been the friend of man since time immemorial. The Angora goat is now taken seriously in America since the value of its fleece for clothing is known. But there is a careless indifference shown and even a stigma cast on the milch goat. This is because of our ignorance, as a people, of the value of goat's milk. Not only of its value as a food, but of its cheapness and freedom from tuberculosis and its superiority to cow's milk. The Bureau of Animal Industry has published a bulletin, No. 68, "Concerning the Milch Goats," which every physician should read.

It seems strange to us, that the American physician is so slow to take up with a food, especially an important food, for which he is eagerly and anxiously seeking for his patients: That he is constantly hunting for a substitute for mother's milk: when he knows that all the food preparations on the market are, as a rule, inferior to cow's milk and that he is behind the poorest classes in Switzerland, Italy, Germany, Austria, France, Norway and Spain in a knowledge of the food value of goat's milk. It is superior in most respects to cow's milk. The yield of the goat is greater than that of the cow, when compared to size and the amount of feed required to keep them. . . .

Peterson, with the peasants of Germany in mind, sums up the worth of the goat in this manner:

(1) The possibility of securing a goat is generally within the reach of the poorest families. (2) The risk and the insurance premium are disproportionately much less in the case of the goat. (3) The goat utilizes its food better than a cow, and gives more milk in proportion to its body weight. (4) The goat is satisfied with little feed and feed of any sort, which is to be had at much less cost. (5) By keeping two goats instead of a cow, the family of the working man may be provided during the entire year with milk by the proper regulation of the time of the birth of the kids. (6) The goat gives a more wholesome milk than the cow and the milk is richer in fats.

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There is almost unanimity of the writers in the countries mentioned of the value of goat's milk for infants, invalids, and cookery. In many cases it is of great medicinal value. Many sanitoriums in France and Switzerland advertise the use of goat's milk as a prominent feature in their treatment.

The wholesomeness of goat's milk for children is undisputed. It is said that the goat will readily adopt infants, calves, lambs, colts, or pigs. That in some countries infants take the milk direct from the udder, and for this purpose the goat willingly enters the house and seeks the infant on the bed. That they conceive a liking for the life they nourish.

Invalids for whom a milk diet is prescribed will find goat's milk by far the best source of supply, as besides being better in feeding power, goat's milk is very much easier of digestion than that of the cow; the reason probably is the extreme minuteness of the fat globules, and hence its similarity to mothers' milk. Owing to the minute fat particles, the cream does not rise so rapidly as in cow's milk and the milk contains about the same amount of fat throughout the day. The goat's milk does not contain any more casein than woman's milk.

Goat's milk is much freer from tubercle bacilli than cow's milk. Some writers claim that goats are abso-

lutely free from tuberculosis. This is putting it too strong. But the following statistics will help to prove the comparative freedom of tuberculosis in the goat to that of the cow. . . .

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We conclude, therefore, that:

1. The goat is freer from disease than the cow and particularly from tuberculosis, and hence the goat milk is more sanitary than that of the cow.

2. That the milk is more nearly like human milk, in the minuteness of its fat globules and the same in casein.

3. That it is more easily digested than the cows' milk, and hence better for infants and invalids.

We believe that the foregoing statements are in the main correct. Then what is the matter with the medical profession of America, and particularly of Kansas? The goat's milk is ideal in character, kind and quality as a food, and its freedom from disease germs and its cheapness are all in its favor and yet it is seldom mentioned in our medical societies or recommended by our physicians. It is an economical food and within reach of the poor. It would be exceptional to find a family so poor in Kansas who could not own two or more milch goats, and have ground and space to keep, and thus solve the infant food and food problem of the family to a large extent and help to prevent the spread of tuberculosis. (1909)

Some Observations on the Work of the State Board of Health

S. J. CRUMBINE, M.D., Topeka

The Kansas State Board of Health was organized April 10, 1885. Until recent years the work of the State Board of Health as defined in the laws on the statute books was not extensive, but largely of an advisory character, and it is believed that with the meager authority it had, and the circumscribed scope of its usefulness as outlined in the laws, that its work was as well done as by similar boards under like circumstances. It is not my purpose to delve into ancient history, but to outline in as brief a way as I may some of the work that has been done the past few years, that in which we are now engaged, and the outlook and needs for the future.

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Soon after assuming the duties of secretary, I became convinced of the necessity of having some frequent means of communication with health officers and the public in general, who might be interested, and the idea of a monthly publication, the *Bulletin*, was conceived. . . . Thus, the sanitary forces have been reorganized, and the central bureau put into close and intimate touch with the one hundred and ten health officers, including the state institutions of the state. The *Bulletin* in the meantime has grown to a publication from 16 to 32 pages. . . .

In the matter of the collection of vital statistics, it is at once admitted that our present system is both cumbersome and inadequate. . . .

The Board is, however, endeavoring to do more than collect statistics on epidemic diseases, it has made a distinct effort looking towards the suppression or control of communicable diseases.

During the past summer a number of towns in Western Kansas were visited by the secretary, accompanied by the Board's sanitary and civil engineer, and diligent inquiry made into the cause of typhoid fever, which was so prevalent in the western section of the state. . . .

We became convinced in these investigations that the fly plays a very important part in the dissemination of typhoid fever. At all events, in a number of western cities, in which the water supply was above suspicion, and in which there was no common milk supply, it seems to be reasonably certain that the fly was the carrier of infection.

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Food and Drugs.—The department of food and drugs has taken up a very large share of the Board's work during this past year. When it is remembered that there are in the neighborhood of 5,000 retail groceries, 1,200 retail drug stores, and about 500 wholesale, jobbing and manufacturing plants of various kinds, whose products all come under the jurisdiction of the food and drugs law, it can be readily seen the enormous amount of work suddenly thrust upon the department. Being a new law, many of these parties were clamoring for information concerning its provisions, and we found ourselves well nigh overwhelmed with the task set before us last spring. The law provides for four inspectors. They have been di-

vided, making three food inspectors, and one drug inspector, the latter of course being a practical pharmacist and a graduate of the University School of Pharmacy. Early last spring it was thought that much might be accomplished in the way of educating the dealers, on the one hand, and of making ourselves acquainted with the commercial side of this great question, on the other, by visiting the larger cities of the state and holding meetings, in which these various dealers and manufacturers might be brought together for a conference. This was accordingly done, and in company with the three analysts of the Board, Professors Bailey, Sayre and Willard, we visited the larger cities of the state, holding meetings and illuminating and explaining the provisions of the law, and in turn gaining much valuable information ourselves. Looking backward at this time, I am convinced that this was one of the most important and best things that we could have done, as we were enabled to meet these men face to face and assure them that this coming together was for mutual cooperation and advantage, that it was not our purpose to be arbitrary in the enforcement of the law, but that we might be of mutual aid and assistance in re-adjusting their business to the new order of things. Of course it was pointed out clearly that the law would be literally enforced after a reasonable length of time had elapsed for bringing about this readjustment. Accordingly, October 1, 1907, was selected, at which time goods sold in this state were supposed to be legal.

In the meantime we took large numbers of samples of both foods and drugs for analysis for the purpose of finding out the state of the market. Naturally, we found that fraud and deceit were common practice in many of our staple food products, but we were scarcely prepared to find that such fraud and adulteration existed in drug products.

This leads me to give expression to the impression which appears to me is entirely logical with the facts in the case, and that is, that while I recognize that much of our medication is entirely empirical, yet a satisfactory result has in my judgement, often been defeated by reason of the practical worthlessness of the drug used, rather than for the reason that it may not have been an appropriate remedy. For illustration, we have found that very many of the fluid extracts and tinctures upon the market do not contain the alkaloidal strength as required by the U. S. Pharmacopoeia, that our tincture of iodine, spirits of camphor and tincture of nux vomica are of various degrees of quality and strength. Recently, a number of samples of spirits of camphor was found to be very little better than water of camphor. We have yet to find an essential oil on the market that is of standard strength. It is almost impossible to find a pure spirits of turpentine.

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One of the most difficult tasks set before us is that of eliminating these false and misleading statements from the patent medicines. The food and drug law declares that any statement, design or device on any food or drug product, that is false or misleading in any particular, is misbranded under the law. With this authority it has been our purpose to eliminate all glaringly false and misleading statements that are usually found on the labels and cartons of these nostrums.

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The Department has determined that this utter disregard for the food and drugs law, which is thus manifest under the pretense of running a drug store in which medicines and prescriptions are presumed to be prepared for the patients of the physicians of the state is a crime against the health, morals and decency of our fair commonwealth, and must be stopped; and I appeal to the medical profession for their moral support in thus ridding legitimate pharmacy of this incubus, and in protecting the interests of the physician and his patient.

The improvement in the grade and quality of foods that are now on the market has been more marked than in that of drugs. Strange to say, the grocers, generally speaking have been more alert and anxious to learn the requirements of the law, and to adjust their business to the new conditions than has been the average druggist. Moreover, the frequency with which grocers' stocks are turned made this matter of adjustment more easy of accomplishment.

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The legislature of 1907 passed a law of no less importance than the food and drugs law itself, which is commonly known as the water and sewerage law. This in effect places all municipal water supplies and sewerage systems under the jurisdiction of the Board. The law requires certain information, together with plans and specifications of every water supply plant and sewerage system in operation when the law went into effect to be filed with the Board, and that all future extensions of the water supply or sewerage systems, and all new plants constructed shall receive the approval of the Board before such construction or extension.

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As an illustration of the conditions of some of the cities, I beg to call your attention to the cities situated along the course of the Neosho River. Six cities secure their water supply from this river; each one of these cities in turn discharge their untreated sewerage into this river, and thus the water is not only entirely unsafe, but positively filthy by the time it reaches the cities in the southern part of the state. None of these cities have an adequate purification system, and in each one

a positive bacteriological test for the colon bacillus has been made a number of times.

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It is evident that such information must be of very great value not only to the people of the state, but to boards of health as furnishing a ground work for the interpretation of water borne diseases, and of suggesting proper preventive measures for their suppression. This cooperative work might be briefly summarized as follows:

First, to determine the nature and condition of the natural water supplies of the state.

Second, to determine to what extent the natural waters are being contaminated by sewage from cities.

Third, to determine to what extent the natural waters are being polluted by industrial wastes, such as come from packing houses, creameries, smelters, refineries, oil wells, salt works, etc., and in what way these wastes might be utilized for beneficial purposes.

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The work of this department has been growing in importance and in the number of examinations made, as the months go by. Strange to say, the physicians of the smaller towns and cities are availing themselves of the privilege of having free examinations made of specimens of sputum, swabbings from the throat, and blood, more freely than those in the larger cities. Naturally, with our present limited equipment and help, the amount of work that can be done is limited.

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Present and Future Problems.—One of the greatest, if indeed, not the most important problem that can engage the attention of any board, society or individual, is that of tuberculosis. The number of deaths from consumption in Kansas reported for the year 1905 was 965, for 1906, 882, and for 1907, approximately 1,000, all the reports not yet having been received. This would make a death rate in the first instance of 63.7, and 56.7 per hundred thousand population of counties reporting, and of approximately 65 per 100,000 in this last year. When it is remembered that our reports are incomplete, it might be asserted that the actual number of deaths from tuberculosis in its various forms is somewhere between twelve and fifteen hundred annually.

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The time has come for the profession of this state to get out and work for what they want, to arouse public opinion in the first place, by giving these matters publicity, and to see the representatives and senators in person in the second place, that they may be advised of your wants, and know that you are insisting that the bills be passed.

In a recent pamphlet issued by the Bureau of Animal Industry of the Department of Agriculture at Washington, Dr. Melvin gave expression to the following sentiment, that whatever plans or methods might be adopted for the eradication of tuberculosis they must fail to achieve success until such time as the tuberculous dairy cow is effectively eliminated.

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(1909)

The County Society

In the scheme of reorganization the county society is the unit and in fact the chief part of the medical organization. It decides who shall be members of the state society, for unless the county society admits a man to its membership, he is barred from the state society. To it belongs the work of enforcing our laws and also of educating the public. Its importance is further shown that hereafter a physician may not pay his state dues direct to Dr. Munn, our state treasurer, but must hand them over to his county treasurer.

Even in the matter of papers to be read the county society is all important, for the ideal is that in the state society only such papers shall be read as shall have been read acceptably before an auxiliary society. Thus in the model constitution issued by our national association provision is made that after such and such a date no paper shall be given room in the state program that has not first been read in an auxiliary society. (1903)

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The Origin of the University of Kansas School of Medicine

S. W. WILLISTON, M.D., Kansas City

As early as 1890 the University of Kansas offered to students of medicine a single year's work in the scientific branches, which work it was hoped would be accepted by reputable medical colleges in lieu of similar work in the medical schools proper. Unfortunately, the requirements of the various State Boards of Health forbade such recognition for work done outside of the strictly professional schools, and the course failed in consequence to attract any considerable number of students. It became necessary therefore, either to abandon all attempts to do work considered by the medical colleges as professional; or to so extend and strengthen the medical courses in the University as to compel their recognition. Various attempts were made in the succeeding years to affiliate or intergrate the medical work with some recognized medical college of the state, but without success. In 1897 a rather bold plan was formulated to provide a medical course of two years' extent, to be in all respects of the character and of the quality of the first two years work in the best medical colleges, eliminating only any clinical studies and substituting in their place the strictly scientific work of the last two years of some colleges. It was expected that as soon as the capacity and desire of the University to provide such instruction of a high character was demonstrated, it would receive the recognition of the better colleges throughout the country, an absolutely vital necessity, since without direct articulation with institutions granting the medical degree, the course was doomed to absolute failure. The scientific departments were extended and so modified as to furnish facilities for instruction of a medical character; the department of physiology was greatly extended and given facilities for high grade laboratory work; and for the first time in an American university not granting the degree of Doctor of Medicine, the department of human anatomy was founded and provided with the best facilities.

Thirty-two students matriculated in the autumn of 1898, at the opening of this two years' course, twenty-three of whom completed the course with credit, all of whom (save one or two who abandoned further professional studies) are now reputable practitioners of medicine. From the beginning, it was the policy of the faculty to demand thorough work on the part of its students, knowing that the only hope of success for the school lay in the character of its graduates; and this policy has been continued, I believe, to the present time. During the writer's connection with the school, not a single one of its graduates failed to receive full credit for the work done at the University of Kansas, nor has any been plucked or conditioned in his further work.

A fight for the recognition of this two years course was anticipated from the start, because of the peculiar and somewhat medieval requirements of licensing boards in America, but no one anticipated that this struggle for recognition would be so severe as it was. The various Boards of Health refused at first, as formerly, to receive as candidates for practice students who had not pursued a full four years' course in medicine at a "regular medical school in good standing," and since the medical school did not grant the degree of doctor of medicine it could not claim to be a "regular medical school." The result was that American colleges of medicine refused to receive on any condition the graduates of the course for advanced standing; and failure was again imminent.

As a preliminary to the recognition of the work done at the University of Kansas, it became necessary to obtain recognition of it by its own faculty, which would seem to be a trifling thing, but which in reality was perhaps the most difficult of all. Some of the conservative of the University faculty opposed the recognition of human anatomy and physiology as being equivalent to the work done in comparative anatomy and physiology previously done at the University, which was recognized as not being professional in character, and consequently not so useful to the student. By persistence, however, this opposition was overcome in June 1899. A few days later the present writer presented the claims of the school to recognition before the Association of American Medical Colleges, which had hitherto refused such recognition. The fight here resulted in victory, afterward consummated at the meeting of the Association at Atlantic City. It was supposed that this would be the end of the matter, but unfortunately the Illinois State Board of Health, one of the most influential of the country at that time, still refused recognition, preventing the acceptance by the Chicago Colleges of Medicine of students from the University for advanced standing. Inasmuch as this refusal set a very pernicious standard, it became necessary that it should be reversed. By personal interviews with the president of that Board, and with the assistance of President Harper of the

University of Chicago, this recognition was finally won; and the telegram acknowledging that fact a little later gave the greatest encouragement to the faculty of the University of Kansas School of Medicine. Finally in the spring of 1902 like recognition was granted by the Regents of the University of New York; and the Kansas University School of Medicine was finally established as a "reputable school of medicine," though giving only the first two years' work of the course and not granting the degree of Doctor of Medicine. Since that time, various like courses have been established in other Universities of America, receiving recognition as a matter of course; but the University of Kansas was the pioneer that made the way easy.

As early as 1876, the writer, while a student of medicine at the University of Iowa, urged in various papers of Kansas and Kansas City the immediate establishment of a school of medicine as a part of the University of Kansas. He little supposed at the time that he himself would be given the privilege so many years afterward of assisting in the establishment of that school. Nothing in his life has been a greater source of satisfaction to him than his participation in the founding of the Kansas School of Medicine; because he firmly believes that in the end all colleges of medicine must become integral parts of the great universities and especially of the state universities; that through them the highest advancement of medical education must be made. It was his privilege to serve various terms as a member of the Kansas State Boards of Health and Medical Examination; and as a member of the Board of Health, he urged an attempt on the part of the board to establish adequate laws controlling the practice of medicine in the state of Kansas, previous ones framed by the physicians of the state having repeatedly failed. A committee appointed by this board in the summer of 1901, of which the present writer was chairman, after a thorough study of the medical practice laws of the various states of the Union, drafted laws which after minor changes by the board, and other unimportant ones by the legislature, became the present laws controlling the practice of medicine in Kansas. Various others have laid claim to the authorship of these laws, but the writer here once for all would emphatically state that whatever credit these laws should receive is due the committee of the State Board of Health. It was very evident to all that not only the practice of medicine, but all schools of medicine in the state of Kansas, must suffer in the laxity of laws governing practice; and the inauguration of proper medical laws, the writer firmly believes, has been a direct and important aid in the development of the Kansas University School of Medicine.

The writer, though no longer connected with the University of Kansas or its medical school, rejoices as much as can any one in its development, and is confident that it has a brilliant and most useful future before it (1910)

The Use of Tuberculin in the Diagnosis of Tuberculosis

M. A. BARBER, M.D., Rosedale

In reviewing the literature on the use of tuberculin in diagnosis one is struck by the diversity of opinion on the part of excellent authors regarding the reliability of the different tests. We have all variations from those who deny the specificity of tuberculin and hence hold that its use has no diagnostic value to those who like Wolff-Eisner, ascribe to tuberculin not only a high diagnostic value but a prognostic as well. However, if we summarize the opinions of the majority we find the prevailing view is that the tuberculin reaction is specific, though not necessarily so to an active lesion, and that this specific action may be demonstrated in the lower animals as well as in man.

It is not the intention of this paper to review the very many recent articles on this subject, but merely to bring forward some practical considerations which may be of use to the physician who has to do with tuberculous cases.

First we know that tuberculin, in order to bring about a reaction, should be so far introduced into the body that it may readily be taken up by the lymph or blood channels; second, we recognize that the tuberculin test, like all biological tests, depends on the quantity as well as on the quality of the substance employed. It is evident then that the ophthalmo test of Calmette and Wolff-Eisner, the cutaneous of von Pirquet and the percutaneous of Moro suffered a disadvantage in that it is impossible, practically at least, to accurately gauge the quantity of tuberculin injected.

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(1910)

Salvarsan

N. C. MORROW, M.D., Altamont

606. Arseno-benzol, or Salvarsan as it has been christened for commercial purposes is an arsenic compound, having two molecules of trivalent arsenic united respectively to each other and to two benzine radicals. In each of the benzene radicals one atom of H has been replaced by the amine group, NH_2, and one atom of H by the hydroxyl or phenol group OH. The arsenic being in its trivalent form makes it a powerful reducing agent. The amine groups give it weak basic properties, enabling it to combine with acids to form salts. Salvarsan, the commercial product, is the hydrochloride. The hydroxyl or phenol groups give it the power to combine with strong bases (such as NaOH) forming phenolates. The basic properties imparted by the amine groups are so weak that where its salts are dissolved in water they are decomposed with the liberation of an acid. Addition of NaOH causes a precipitate of the insoluble base, which is used in suspension for subcutaneous and intramuscular injection. Further addition of NaOH produces the soluble Na salt, which is used in solution for intravenous injection. So much for the chemical properties of 606. Now for its origin.

For a number of years Ehrlich has been working on the synthesis of drugs, starting from the basic idea that a specific chemical affinity exists between specific living cells and specific chemical substances. He believed that for each specific parasite a specific curative drug could be found. But such a curative drug must have highly parasitropic activities and negligible organotropic activities, in other words it must have the power of destroying the parasitic organisms, and yet leave the organic cells of the host uninjured. How the animal parasites causing malaria, sleeping sickness, relapsing fever, syphilis, etc., apparently cannot be successfully attacked by means of immune sera; hence their conquest must be attempted by means of chemical substances. So it is with this class of parasites that most of Ehrlich's researches have been conducted.

Because of the epidemic of sleeping sickness in Africa and because the trympanosome is easily transferable to mice, he began working with trympanosomes. He soon succeeded in producing a new substance, trypan-red, which absolutely cured every infected mouse with one injection. This was the first time that an animal had been completely sterilized, i.e., that every one of the parasites within the body had been destroyed by one dose of a disinfectant. It was further discovered that if a smaller dose were used all the parasites would disappear from the circulation for a given time and then reappear. If the dose were repeated the parasites would again disappear only to return after a shorter interval. If several such doses were given a strain of trympanosomes would be produced on which trypan-red had absolutely no effect. And this power of resistance would be transmitted to their offspring for many generations. The demonstration that these parasites could so readily become resistant to chemical substances led to the conclusion that in order to permanently cure a parasitic disease it is necessary to destroy in the shortest possible time, i.e., by one injection, all the parasites in the body. This act of sterilization with one dose, Ehrlich designated as "therapia sterilisans magna."

Parasitropic drugs may be divided into two great classes. 1. Those that have a highly destructive action on parasites outside the body and have no effect within the body, such as $HgCl_2$. 2. Those which have no effect whatever on parasites outside the body, but show a high sterilizing power within the body. Obviously this new type of therapeutic agent belongs to the second class. Their action may be explained in two ways. First, when taken into the body these substances are so changed that they become effective against the invading parasite. Ehrlich has shown this to be the case with atoxyl, which in test tube experiments has absolutely no effect on trympanosomes. If, however, atoxyl is reduced and mixed with a culture of trympanosomes it will destroy them in a dilution as great as 1 to 3 or 4,000,000.

The second explanation is, that the drug has an inhibitory action on some function of the parasites connected with reproduction, or that it destroys some component part of the parasite. This theory also has been proven by laboratory experiment.

In the course of these experiments a large number of chemical substances have been tried, as the number 606 indicates. But very few of them, four or five at most, have been found to have the requisite combination of high parasitropic and low organotropic activities. Most of them are substitution products of some other drugs of known parasitropic power. Arsenobenzol or 606 is a substitution product of atoxyl, a drug that has been used with some degree of success in sleeping sickness. When the potency of 606 against spirochæta pallida was discovered, it was first thoroughly tested in laboratory experiments, then cautiously administered to patients inefected with syphilis, and finally it was placed in the hands of a number of competent observers in order to thoroughly test its efficiency and dangers before giving it to the profession at large. The reports made by most of these observers seemed incredible. The spirochæta pallida disappears completely in from one to three days after

the injection. Intractable lesions that had resisted the usual specific remedies healed with astonishing rapidity, secondary eruptions disappeared as if by magic, and erosive chancres healed completely in a few days. In a large number of cases the Wasserman reaction became negative and remained so indefinitely. The most remarkable results were obtained in intractable tertiary lesions. This may be explained by assuming that there were already a large number of antibodies in the patient's blood which were enormously stimulated by the injection, or that the strain of spirochæta had become greatly attenuated. Of secondary lesions those on the mucous surfaces healed most readily, next the skin lesions of the moister type, while the dry scaly secondaries were but little improved. Of primary lesions the erosive chancre heals much more readily than the indurated type. Cases suffering from para-syphilitic diseases showed no improvement.

As to the technique of administering 606, it is complicated and difficult, and I shall merely give an outline of it. Already many modifications of the original technique have been devised, each carefully labeled with the name of its inventor. Their number and complications are confusing to the disinterested observer, and suggest the idea that possibly not all of them have been conceived from purely scientific or altruistic motives. Salvarsan, the commercial product, is the hydrochloride of arseno-benzol. When dissolved in water HCl is liberated making the solution strongly acid. This is exactly neutralized with NaOH which causes a precipitate of the insoluble base. This insoluble base is used in suspension for subcutaneous or intra-muscular injection. If the suspension is either slightly acid or alkaline the injection is very painful. When excess of NaOH is added to the precipitate it again goes into solution as the Na salt, and it is the solution of this salt that is used for intravenous injection. Ehrlich has recently recommended the use of intravenous method whenever possible.

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(1911)

Sickness Insurance

It is not improbable that in a few years at least, the medical profession will have an opportunity to try out some plan of sickness insurance under federal supervision. There is no argument which so strongly appeals to the American people as one which is expressed in dollars and cents. The Commission on Industrial Relations, appointed by act of Congress in 1912, has recently made a report, and in this report has presented figures that must make some impression upon the commercial world.

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The commission also found that the present methods of disease prevention and of cure are expensive, and that sickness is most prevalent among those who are least able to bear the burden, and, inasmuch as there is no prospect that wages will be increased to the point where these poor people will be able to meet these expenses, the commission proposes to devise some plan by which they may be cared for.

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The loss on account of sickness among the poorer wage earners is now borne by themselves and the physicians. The latter give their services and get something or nothing, as the case may be. Will the average amount received for his services under the insurance system be greater than under the present system? At any rate it will be a lighter burden for the wage earner, for the expense of his misfortune will be shared by his more fortunate brothers. But why should the physician be expected to carry so much of the load? The laboring man does not get his groceries or his fuel or his clothing any cheaper when he is sick than when he is well. It can hardly be hoped that any system of sickness insurance will be adopted which contemplates a tax upon the employers, and it is difficult to see any other system of sickness insurance any prospect for adequate compensation for the physician. (1915)

Things Original from the Kansas State Board of Health

1. First state to inaugurate state-wide anti-fly campaign and originator of the slogan "swat the fly" now a world-wide expression.

2. First state to abolish common drinking cup, now prohibited on interstate trains by federal government and twenty-seven states.

3. First state to abolish roller-towel, now forbidden on interstate carriers after March 1, 1913.

4. First state to forbid use of ice directly in water tanks, on railroad trains to become effective July 1, 1913.

5. First state to establish a standard for oysters and prohibit shipments in old, filthy, wooden tubs, and compelling shipments in glazed metal containers that could be sterilized, and ice packed around instead of in the oysters, saving the consumers annually $75,000.00. Most all of the states have since adopted the Kansas standards.

6. First state to invent a portable emergency hypochlorite plant for purifying polluted city water supply on short notice, in case of typhoid epidemic. Since adopted by many other states and countries. (Engineering news.)

7. First state to utilize the Boy-Scout movement in town clean-ups and anti-fly campaigns. Since has been recommended by National Oragnization.

8. First state to utilize the moving pictures as an educational feature in public health work. Since its utilization has become universal.

9. First state to make investigations covering one year, of the loss of weight in stored butter and flour to check up short weights. This data is now used all over the U. S. by Food Commissioners in short weight frauds.

10. First state to utilize the popular post-card in public health education.

11. First state to investigate the question of "Copper in Oysters." Now considered a classic even by the Federal Government.

12. First state to make a study of tomatoes and canned tomatoes industry.

13. First state to investigate the condition of waters served on railroad trains and stations, resulting in federal government appointing a commission for fixing a standard for "What is pure (safe) water," of which the Kansas Secretary is a member (just appointed).

14. First state to start research work on the relation of the sand-fly to the mysterious disease pellagra (still in progress).

15. First state to have a summer school for physicians and health officers, to train men for state service. (Third annual this year. Fifty registered last year.)

16. First state to undertake a social study of vital statistics to be used for social betterment. (Now under way.)

17. One of five states that the U. S. Public Health Service grades in class A in certain phases of public health work.

18. First state to adopt civil service examination as basis of appointment of Food and Drug Inspectors.

19. First state to fix standard for medicines not standardized by the U. S. P., N. F. and other standard authorities.

20. First state to regulate the sale of deteriorated Patent Medicines. Kansas standards are copied all over the U. S.

21. Requests for *Kansas Health Almanac* from all over the world.

22. Kansas Bulletins used as texts in Domestic Science Departments and High Schools in several states outside of Kansas.

23. The first state to provide for quarterly inspection of all Packing House employees with regard to communicable diseases. (1913)

Income Tax—A Correction

Our attention has been called to a statement in the last number of the JOURNAL that "Physicians whose gross annual income exceeds $6,000 are required to pay, in addition to the regular tax and surtax, a special tax of 8 per cent." We are advised that this statement should have been "Physicians whose net income—" (1918)

Methods and Value of Blood Transfusion

W. M. MILLS, M.D., Topeka

Transfusion of blood is blood transference from one individual into the vascular system of another, and is properly regarded as a genuine tissue transplant and not merely the introduction of a chemical mixture. The success of transfusion of today is due especially to the improvements of technique. With rigid asepsis, proper choice of the blood of the donor, with a rational study of the indications, transfusion has become a simple surgical procedure of incontestable value. The ideal technique makes four requirements: first, absolute asepsis; second, that the blood transfused neither contain clots nor substances that would cause clotting in the vessels of the recipient; third, ability to measure the amount of blood transfused; fourth, ease of performance for donor, recipient and operator.

The methods by which transfusion may be accomplished may be grouped under three classes; first, passage of blood directly from donor to recipient, avoiding contact with anything but intima of blood vessels; second, passage through foreign tubes connecting blood vessels of donor and recipient; third, employment of an intermediate receptacle between donor and recipient.

The use of transfusion is based on the fact that transfused blood is an ideal substitute for blood lost in acute hemorrhage; in pathologic hemorrhages is a powerful hemostatic; and in critical cases of secondary anemia it may act as a stimulant.

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A general principle governing the use of transfusion in these acute hemorrhages is that where the bleeding point must be dealt with surgically, transfusion should precede the surgical treatment of the ulcer, or ruptured tube or other source of hemorrhage, and should be of large quantity. Otherwise the transfusion should be of smaller quantity so as to secure the hemostatic effect without raising the blood pressure too much or delayed until the quiescent stage of the hemorrhage, when the vascular system should be "filled to the brim." Shown by the clinical evidence of rosy color and improved pulse and blood pressure.

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The results of transfusion in some of the pathologic hemorrhages are as brilliant as in acute. There is here lacking some element necessary for quick coagulation, as fibrinogen, prothrombin, blood platelets, etc., and this lacking element is supplied by the transfused blood.

Hemorrhages due to jaundice are arrested, and permanently so, if the cause of the disease can be removed by surgical measures. The bleeding of hemophilia is arrested for some time, although the disease is not cured, and there may be subsequent hemorrhages.

It is in cases of hemorrhagic disease of the new-born that some of the most striking results are seen. Here the mortality was formerly estimated as high as 75 per cent; while with transfusion restoring the lost blood and stopping the hemorrhage, the figures are more than reversed. Lespinasse reports fifteen personal cases with two deaths; and both were syphilitic. Vincent has reported nine cases with one death. The writer has had one critical case cured by syringe transfusion. Before resorting to transfusion of human blood, the indications point to the injection of any serum, though preferably human serum; as by this means many cures have been reported in hemorrhagic disease of the new-born, when the hemorrhage has not progressed to the point where the loss of blood itself is a menace to life. On the other hand, many cases have been cured by the transfusion of human blood after failure to secure results by the injection of serum alone. (1916)

Editorial

New York City and Philadelphia are having a severe epidemic of typhoid fever. So soon as the efficacy of typhoid vaccination shall have been established, this disease will disappear, as smallpox has diminished. Two other dreadful diseases however, have appeared which interfere with the annihilation of contagion and epidemics, viz., Christian Science and Chiropractic Numscullery. (1913)

Dirty Doctors

People are not strongly impressed by the views upon hygiene and personal cleanliness of a man who is not himself clean. People are but slightly impressed with the dangers of infection when they are examined and treated in an office which is most remarkable for its filth. We should ourselves be clean then we may speak authoritatively to those who depend upon us for advice. We should have clean methods for the care of our instruments, our dressings and our drugs, then we may hope to have the co-operation of our patients and their attendants in our efforts to avoid infections.

This subject of hygiene has become entirely too popular for the doctor who is too lazy, too indifferent, or too busy to apply the ordinary rules of sanitation to himself and his office. Cleanliness is no longer regarded as simply a matter of taste, but is now considered a prerequisite to good health. The people will not long tolerate a careless disregard of the most simple hygienic rules in those to whom they intrust the care of their ailments.

It is not well for one to be confident of his independence in this matter, because of his professional skill nor because of his lack of competition. The people are supreme and they have ways of correcting obnoxious conditions that are effective if not always agreeable. In this connection it may be well to quote the following from a statement by the Secretary of the Board of Health:

"There has scarcely been a session of the Legislature when I have appeared before it and committees concerning work and appropriation for this department, particularly as related to the Division of Foods and Drugs, but what I have been humiliated, if not insulted by someone insisting that the Board inspect doctors' offices, which they state are often the dirtiest places in the various towns."

It would be rather humiliating for the legislature to require the regular inspection of doctors' offices.

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(1916)

Editorial

Our Duty

The medical profession of this country seems very slow to realize that a real emergency exists. The government has been persistently calling for medical men for the great army it is preparing to send to the battle field.

Our profession is not unpatriotic. There has never yet been a crisis in the affairs of the world to which the medical profession did not rise en masse and respond to the call of humanity. It is certainly only because the need has not been fully appreciated that our men have not come forward.

The estimated requirement is 20,000 medical officers for the 2,000,000 men, but will that number answer all the needs of this war? The allies are asking for help from the medical profession of the United States. England has exhausted its resources and there are not enough men left to properly care for the people at home. In densely populated districts there is one physician for every 4,000 inhabitants and in the sparsely settled areas one for every 2,500 inhabitants—and these men are now subject to call.

Should the war continue for several years it is reasonable to expect that the United States will send several millions of men to the front and this will mean additional thousands of medical officers. In the officering of our army, ten medical officers are to be provided for each one thousand men. It is said that England has found it necessary to provide nineteen medical officers for each thousand soldiers. If then the estimate of 20,000 medical officers appears to be inadequate for the probable needs of the present plans, what is to happen when even this number is so slowly accounted for?

It has been suggested that the whole medical profession be drafted and its members ordered to such duties as the needs may demand. This is perhaps the easiest solution of the problem and, while not particularly creditable to the loyalty of our profession, will more quickly and surely meet the present emergency. Those under 45 years of age are very likely to be sent to the front and those over that age will be used for various duties connected with the care of camps and the examination of recruits.

The number of medical men now asked for is about one-seventh of the total registered physicians in the United States. There are somewhat more than 140,000 registered physicians of whom probably one-half are

over 45 years of age and 30 per cent of the remainder are disqualified for service for various reasons.

There are 122 registered male physicians practicing in Topeka. Of this number 60 are over 45 years of age and 32 are over 55 years of age. This is perhaps a fair average of the age status of the whole profession. If out of 70,000 physicians under 46 years of age 30 per cent are disqualified, there will be left 49,000 from which to draw the needed medical officers. It is safe to predict that before the war is ended every one of these men will be called into active service.

Our patriotism, our loyalty to the cause of humanity and our professional pride demand our prompt response to this call. Every physician in Kansas should tender his services to the government, send in his application for a commission in some department of the medical service, and let those appointed for the purpose decide whether his services will be required. (1917)

The Medical Society in War Times

If there are any reasons why a county society should abandon its meetings at this time, there are many more and better reasons for its making unusual efforts to meet regularly and add every eligible physician in the county to its membership.

In most all county organizations there are a few men who have furnished the time and the work and the energy to keep it going, for the benefit of the others. As was to be expected a good many of these men have joined the Medical Reserve Corps or some other medical corps of the army. In some counties those who are left at home are ready to lie down on the job and abandon the Society.

The privileges of a medical society, and especially of a unit of the Kansas Medical Society, are available equally to all its members, and every member is under the same obligation to the Society. The fact that some of the members have, for a time, been relieved of all of the responsibilities of the Society's existence, except the payment of dues, does not release them from their obligation to assume those responsibilities when the need arrives.

There are a considerable number of men who feel that it is worth while to belong to the Kansas Medical Society for the standing it gives them, if for no other reason. But the only provision for membership in the State Society is through membership in a county organization.

The State Society should make some arrangement by which the dues of all those members who are in the service of our country will be paid for them or remitted. That would be just and fair and no doubt some such action will be taken. But in order that these men may retain their membership in the State Society the organization in which their membership is held must be maintained. It is one of the duties of those who remain at home to see that these county organizations are kept active and progressive.

Some of the county societies have shown a true fraternal spirit by adopting such regulations as will protect and care for the practices of its members who have joined the army service, and give their families a very liberal share of the income. But suppose the members of these societies that stay at home should abandon the organization, then all the fine plans and good resolutions would count for nothing. One cannot believe that a society which has shown that much fraternal spirit is likely to go to sleep because some of its members have gone away, but there are a few organizations that seem to be very indifferent to the present situation.

There are a few county societies in which so many members have been commissioned that it may not seem possible for the few that are left to have regular or profitable meetings. They can, however, have joint meetings with neighboring county societies that will more than likely be of greater value and interest to them than the regular meetings they have formerly had.

The medical profession is destined to play an important part in this war and, from the present outlook in the war zone, the demand upon its resources has hardly begun. The preliminary call for medical officers has not yet been fully met and it is not improbable that three or four times as many will yet be required.

If there ever was an imperative demand for perfect organization it is at this time. There will be many issues, regarding the interests and welfare of those in the service, that can be brought to a satisfactory conclusion only by the perfect co-operation of the medical men at home. There will be many occasions for the concerted action of those at home, in the protection of our own rights and privileges against vicious legislation, and in the enforcement of such provisions as the exigencies of war may make necessary for the conservation of the public health. (1917)

Good Roads

Most every one travels a little these days, some on trains, some in automobiles and a few in wagons and buggies. Even most of those who travel on trains are interested in good roads, but of all people who want good roads, permanent good roads, roads that are good all the year round, the doctor wants them more than anyone. He should be interested, not only in getting good roads constructed, but he should use his influence in getting the right kind of roads.

Of all the disappointments in the matter of roads, the high crowned road and the old macadam are the most bitter. The former is not good to drive on in dry weather and is impossible in wet. It dries off quickly it is true, but the water running off makes crosscuts that are worse to drive over than a cobblestone pavement. This kind of road can be fixed by taking the crown off, but the old macadam which has been neglected gives one nystagmus trying to zigzaz around the holes, and the ones he fails to miss jar the stones out of his gallbladder and tie knots in his intestines. There is no way to repair them except to build them over.

In spite of the general disturbance in public affairs caused by our preparations for war, considerable permanent road building is being projected in Kansas. Before the people along these routes spend much money on the construction of hard surfaced roads they should very carefully consider the matter of maintaining them. A few years ago several very excellent macadam roads were built into Kansas City from several points in Kansas. Today those roads are a disgrace to the State. Whether they could have been kept in a decent state of repair we are unable to say, but it is certain that they were not. If it is impossible to keep macadam roads in repair, no more of them should be built.

There is now a considerable amount of talk in favor of concrete roads. These are usually made in section, with joints every fifteen or twenty feet. They are very fine when new, but after a few years begin to wear at the joints and in driving over them one gets a good jolt every fifteen or twenty feet as the case may be. Brick roads built on sand are a delusion, as a rule. Some five or six years ago several miles of brick road was built into one of the cities of Central Missouri. Today the travel is all on the dirt by the sides of this pavement, the pavement being very badly wrinkled and cut up. The more you try to repair this kind of pavement, the more uneven and rough it gets. Gravel roads are easier kept in repair than any other kind, and when made sufficently wide and not too highly crowned, are as good as concrete or brick. It takes some time to get them into permanent condition, but then they are much more easily kept in condition. Of all the hard surfaced roads we have seen, that from Topeka to Rossville is, for its age, by far the best. It has been kept in repair and gets better and more permanent with age.

In other states one will find the same neglect of roads that have been built at great expense as in Kansas. There is a hard road from Galesburg to Chicago. The portion of this road nearer Galesburg is mostly new and in fine condition, but a hundred miles of it nearer Chicago is badly cut up and greatly in need of repair. The Lincoln Highway, once a great attraction for the motorist, is a "has-been," or at least that portion of it from Chicago to Sterling. This road was constructed with the State's aid, but at the present time is a poor recommendation of the economic foresight of that great commonwealth. (1917)

When we consider the number of deaths from diseases which in a vast number of cases are preventable, it almost appalls one. We should hesitate in our wild scramble to discover something new, which event would hand down our names to posterity, but try and educate the laity in the preventation of typhoid fever, small pox, tuberculosis and many other communicable diseases. This is not meant to carry the idea of non-progression or original research, but to exert ourselves to the utmost in stamping out diseases which we know can be prevented by proper measures. (1908)

Freudian Psychology

MAUD S. DELAND, M.D., Topeka

This paper is merely an effort to show that the Freudian theory is not something unique, bizarre or different from the science of biology, but on the contrary it is quite in keeping with modern physiology in considering man as an adaptive mechanism. Nothing original is claimed; in fact, the chief claim this paper has to your consideration is that it is merely a compilation from books and technical magazines written by people whose extensive work and experiments entitle them to a hearing. Except where condensation was necessary, the exact wording of the author has been preserved in order that the meaning may not be distorted.

For years past we have been observing the symptoms of mental disease and perfecting a classification based thereon. This is good as far as it goes. It is good to know typhoid fever, diphtheria and malaria as clinical entities and to know how to treat them to get the best results, even though that treatment be purely empirical. But it is far better, both from a practical and scientific standpoint, to know their etiology. And so it is with mental diseases. We wish to know the specific causes.

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(1918)

My Experience at the Front

J. G. MISSILDINE, M.D., Parsons

In this attempt to give you some ideas concerning my work with the American Expeditionary Forces I shall not confine my remarks to the medical or surgical aspect, since the work at the front consists of first aid and emergency medical treatment and is not of the most interest unless treated with the movements and experiences in general.

We left the United States early in July and found the following weeks not altogether happy since the submarine activity at that time was at its height. Life belts were constantly worn and frequent life boat alarms were given, all of which was real enough to furnish apprehension. We reached France the last of the month, via England.

A company of casual medical officers was sent from Cherbourg to St. Aignan, which is about a hundred miles south of Paris. After two weeks' instruction at this place in gas drill and the use of Thomas splints I was assigned to the third battalion of the Sixteenth Infantry, a part of the First Division. All luggage which one could not carry was left behind or promptly lost on the way to the front. I joined my outfit in a few days, going by train to Vaucouleurs, thence by automobile to Pagney la Blanche. Here the organization was receiving replacements and the men were being re-equipped, having just come out of the strenuous Chateau Thierry offensive.

At this time I made the acquaintance of the officers and men with whom my real work was to be done. To me this outfit of seasoned regulars was an innovation in the matter of associates, but I quickly learned that their hardness was the most valuable quality a man could possess when real fighting was on and this quality I soon realized was highly communicable to the newcomers.

From here on we marched, always by night, to take part in the St. Mihiel offensive. During the day all the animals and vehicles were kept under cover of a woods, or camouflaged, and the men were likewise kept from the observation of the enemy aircraft. For several days we were within a night's march of our front line, expecting each evening to go into this much heard of drive, which started the morning of September 12. The night before I visited the front line trenches with a party of officers to make a reconnaissance, my special interest being to acquaint myself with the ground to be gone over, and to pick out the best possible first aid post, always considering the availability of the ambulance service, easy access to the battalion while in action, together with as much protection from the enemy fire as possible.

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All of the medical corps men are skilled in dressing wounds and in emergency treatment in general. Morphine to prevent shock and to relieve pain was freely used and was of great value. Antitetanic serum was used as a routine measure, if not in the field, then at the ambulance dressing station. The supply

of dressings is never large enough unless one has the luck to find a supply left behind by the enemy, in which case it was necessary to make sure that they were not left behind for the purpose of infecting those on whom they were used. Usually this was easily done. Everything, including sterile dressings, Thomas splints, and iodine swabs, had to be carried by hand in addition to the regular equipment of army men, and naturally an abundant supply was impossible. It is regrettable that is was sometimes impossible to carry the load started with and that useful material had to be discarded. It was better, however, to be with the battalion with a limited supply of things than to be weighted down to a point where keeping up was impossible and not to be on hand when our help was needed. Keeping up was difficult, for the reason that one met wounded men every little while who required attention. In the St. Mihiel affair the prisoners were used for litter bearers, which saved our fellows splendidly.

Sharp criticism frequently came along from the medical officers farther back because of the failure to properly dress fractures, but to anyone who has followed an advancing outfit of enthusiastic Yankee infantrymen it is perfectly patent that whatever is done must be done quickly or the medical officer and his men are lost from the battalion, and of course of no further service to them.

Following the affair of which I have been speaking, we were sent into the Argonne sector near Verdun, where my division relieved the Thirty-fifth on October 1. This was quite different from the sector we had just left. The resistance was stubborn, enemy machine nests were everywhere, and we were constantly harassed by their high explosive, shrapnel and gas. It has been said that we lacked artillery support, which may be true, but if so, unquestionably unavoidable. The constant shelling of the roads made traffic almost impossible.

Here I was transferred to the regimental dressing station which was located in the demolished village of Charpentry. We used a dugout from which the Germans had been driven and from here evacuated the casualties from the battalions in advance of us. The number of wounded and dead constantly increased, which kept us all working day and night with little time for rest. Many of my friends and men I had learned to like and admire were killed or sent back wounded, among them my orderly, a boy seventeen or eighteen years old, who had served me most faithfully, hit by a shell which mutilated an arm, and almost immediately he was killed by another shell. Nearly all of the first aid men with the regimental dressing station were gassed or wounded. About 3 o'clock the morning of October 3 I was gassed, which incapacitated me for work, and I was evacuated a few hours later. I was yet unable to return to my regiment when the armistice was signed. (1919)

Etiological Factors in Children's Dysenteries

EDWIN H. SCHORER, M.D., Lawrence

Children's dysenteries are of the greatest importance to us as they occur during the summer months, and by many writers on the subject are considered only as the "summer diarrheas of infancy." Many attempts have been made to classify these intestinal disturbances but generally these classifications have been unsatisfactory. With the discovery in 1898 of a bacillus of dysentery by Shiga, a specific etiological factor for at least a group of these disorders was established, and this group we can now call the group of epidemic dysentery. This group, however, does not by any means include all of the summer diarrheas of infancy, for the group of non-specific dysentery, no one causal factor has been discovered.

Before we can consider the various causes of the intestinal disturbances, we must realize that we have two large classes of causes of disease; predisposing and actual. Of these the predisposing causes reduce the vital and physical powers of the body and include such factors as age, sex, race, hygienic conditions of environment, climate, food and heredity. . . . (1910)

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Editorial

In the July number of the JOURNAL, there appeared an editorial explaining the workings of the Medical Defense as is now conducted by the State Association, and I trust we will be pardoned for again referring to the same subject.

The first yearly report of the Defense Board was strong evidence of the success with which the plan works and should stimulate interest in the State Society, to the end that our membership should be doubled.

We are getting this protection without one cent of additional cost for membership and it is desired that the membership fee shall remain the same.

All of us know acceptable members of the profession who are outside of the State Association, and who, perchance, know nothing of the Defense feature.

There are within the borders of the state fully 1,000 doctors who can easily be induced to join the State Society.

What is the best way to reach these men and get them within the fold?

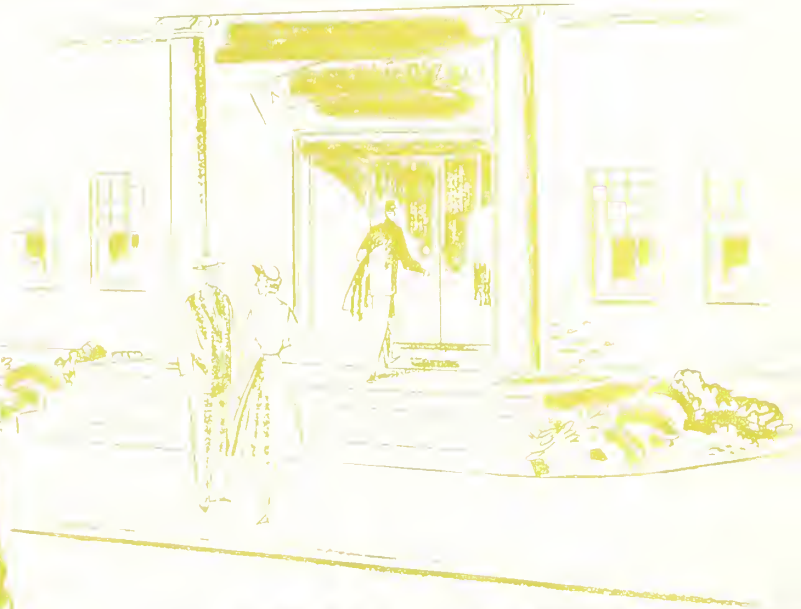
One might say, let them alone if they do not know enough to seek the Society, the Society should not seek them.

This is undoubtedly the wrong argument because many of these men have the intention, the desire to join the Society but procrastination, busy life and a hundred and one things that come up in the life of a doctor causes him to neglect this important matter.

When one of us meets such a doctor say to him, "send in your application to-day," explain to him that the State Society will protect him from unjust suits and blackmail, and thus by deputizing ourselves to bring in new members, we will not only grow stronger, but will be able to keep the dues down to the present low figure.—*H. B. C.* (1912)

Are we not too easily influenced in adopting the "new" things in medicine? For instance, in anaesthetics many have cast aside ether anaesthesia for scopalamin-morphin-cactin, when the percentage of deaths from the former has been proven by Woods to be but one in 16,000. The same author has proven that the mortality in the latter has been one in 300. There may be instances when scopalamin-morphin-cactin anaesthesia is preferable, but it is safe to assume that it will not supplant either. This is also true of the spinal injection of tropo-cocain. There may be a few instances when it is advisable, but is hardly probable that it will reach the universal usage that ether or even chloroform has. There is another fad that had an almost unprecedented run. It was an intestinal antiseptic purported to be many times stronger than corrosive sublimate, yet when taken into the system was harmless except as to its bactericidal powers. It was supposed and exploited to be almost a specific for typhoid fever, and attained enormous success as to sales but clinically was a failure. Let us be conservative in medicine as well as surgery. This is not meant to carry the idea of non-progressiveness. There is plenty of room for every good, new idea, no matter whether in medicine or surgery. (1908)

1921
"The Doctor Extends His Horizons"
1940



irst building, The Menninger Psychiatric Hospital
nd Sanitarium, Topeka. (1925)

ansas Oil Field scene in early 1920's.

urr Oak CCC Camp, Jewell County. (1930's)

Introduction

Another and more terrible war—a "World War"—is over, and to it Kansas has again made her contribution both in fighting men and support for them. Flying airplanes (or "aeroplanes") are becoming less spectacular because they are more frequently seen. Automobiles are common, though not entirely reliable, and "wireless" communication is coming of age, albeit through headphones. In addition to the railroads through the state, Kansas is now beginning to have some paved highways which will encourage motor travel. Prohibition has now become national in scope, though not with universal approval! Power machinery has become important in farm life as well as in industry.

The electrocardiogram has been introduced and its use is growing. The beginnings of endocrinology are appearing, and the surgeon has invaded the thoracic and cranial cavities for conditions previously not amenable to surgical attack—largely through the advances in anesthesia which have made these procedures possible. J. B. Murphy, Harvey Cushing, and many others are pushing American medicine to a level which is challenging the long European domination. Some public health hazards such as the common drinking cup and roller towel are gone, and the campaign against the housefly is in progress.

As we have made gains in our knowledge of physical health and disease, we are on the brink of a better understanding and greater appreciation of the importance of mental health and provisions for its study and care. Kansas is to be the hub of this growth. We will also note an increasing desire on the part of the physician to participate in social changes and to help mold them, as he expands his horizons, both as a doctor and as a citizen.

Remarks on Infant Feeding

E. G. PADFIELD, M.D., Salina

It is neither my desire nor intention in this paper to take up the many questions which arise in feeding sick and abnormal infants. To go into these questions at all intelligently each separate case would of necessity have to be taken individually and would require many times the time allotted to us here.

From observation, it is my belief that the most important time in the child's life is the first year or two. This is the time when a child is started successfully on its way in life with a good digestive system or with its digestion, and consequently its entire physique, impaired by improper food or with food improperly prepared and given. If the medical profession believes in preventive medicine it has a wonderful chance to show this by taking an intelligent interest in the feeding of every infant. And this not after the child has been brought to you underweight and with digestive disturbances to correct, but rather from the very first day of the child's life, so that there will be no cessation of the normal gain and no disturbances to upset the child.

When we consider the huge number of children who die in the first two years of life, it seems that we cannot over emphasize the importance of this branch of medicine. I know that many will say nature will take care of them—and would in most cases if given the chance. The trouble is that the physician and the parents combined are often able to undo all of the good work that nature attempts.

Taking the normal infant and the normal mother there is of course only one food to consider for the first few months. This is mother's milk, and it is important to keep the child on this diet from the first if it shows a gain in weight. Every effort should be put forth to keep the quantity and quality of the mother's milk up to standard. In this it is essential that the mother be watched very carefully, and that she be given definite instruction as to diet, exercise and hygiene. No child should be taken from the breast simply because the mother thinks she can't nurse it or because she thinks it will not be ladylike to do so. The test by which we can judge whether or not the mother has enough milk or whether it agrees with the child is by the weight curve of the child. This should be noted weekly and put down in black and white, so that a faulty memory will not enter into our calculations in regard to the loss or gain in the child's weight.

Every mother's mind should be disabused of the idea that she will not be able to nurse her child. The psychological effect of these thoughts on the quality and quantity of the milk is very great. Any worry will naturally upset the milk glands in their functioning and thereby cause digestive trouble to the child. It should be the aim of the physician to see that the mother is free from worry as much as possible, especially the first three or four months of the infant's life, or until it gets its digestive apparatus to functioning well.

Next to the importance of seeing that the mother takes the proper care of herself, I would say is the establishing of regular habits in the child, both on account of the effect on the flow of milk and upon the child. The mother should have regular periods for feeding the child. It is far easier for the child to become accustomed to feeding at regular intervals than for it to feed at any time when the mother may think it is hungry. A newborn babe should be put to the breast every two and one-half hours during the day and once at night, after the first twenty-four hours. A great many men now are adopting a three-hour schedule from the first, and it really seems that this is often enough for most strong, healthy babes. But whatever schedule we have the mother adopt, we should insist that the baby be fed according to that schedule. It will be only a few weeks until the child will awaken at its feeding time and will need no outside interference to tell it when to eat.

If a child on mother's milk does well, when should it get additional food and what? Up until recently most authorities advocated no additional food before the child was nine or ten months old. But now it is considered good for the child to start something earlier in the way of nourishment. In supplying the child with extra food it is well to start with very small amounts, in order to see whether or not the digestive organs can take care of it. In addition to orange juice and prune juice, the normal child can digest and benefit itself by taking vegetable broth made from carrots, spinach, turnips and peas. The iron obtained in this way, causes a rapid improvement in the anemia so often seen in children from six to eight months old. At about the seventh month, a cereal such as Ralston's or Cream of Wheat may be given with milk and sugar, given in small amounts at first, and at the end of two weeks one entire feeding may be given. At this age the child digests carbohydrates very well, and in cases where constipation causes trouble, it is usually much improved after the child is taking one feeding a day of the cereal. Zwieback may be given

the child now, it usually enjoys chewing on it, digests it well, and it probably helps some in getting the teeth through sooner than they otherwise would.

At nine to ten months, beef or mutton broth with toast or zwieback may be given. The nourishment in this is not great but the salts and extracts in it probably stimulate digestion. Often at this age, the child apparently gets tired of its regular food, and the addition of the broths seems to get away from the regular run of its diet and helps to get back its appetite as well as helping supply the salts which the child needs. At the end of the first year it should be our aim to have the child on straight cow's milk with the food already mentioned, and an egg every other day.

In case the mother cannot feed her child and have it gain naturally and regularly, what shall it be fed? This is probably the most important question in regard to the child which we will have to decide. Goat's milk chemically is the nearest to mother's milk, but is not a practical food except in isolated cases, as goats are not readily obtainable, and many families in the city would not be able to care for one if they could get it. We have left the different patent foods, the condensed milk and cow's milk. The relation of carbohydrate, fat, and proteid in all of these foods is entirely different from either cow's milk or mother's milk. They are all very high in carbohydrates and comparatively low in fat and proteids. Many children will of course gain rapidly on these foods, due to the high sugar content. But those who have any intestinal trouble do not have the resistance of babies fed either on mother's or cow's milk. The patent foods do not cause as much intestinal trouble as the Eagle Brand Condensed Milk, as their sugar content is largely dextrose and maltose, while the latter contains cane sugar which is much harder to digest and causes more fermentation in the intestines. The only thing in favor of this condensed milk, looking at it any way you like, is that it is easy to prepare, and that is a mighty poor recommendation for something to feed an infant. If the principle of safety first is advocated anywhere, it should be in the feeding of infants. Very few doctors would prescribe medicine for a child if they did not know the size of the dose of each ingredient the child would be taking. But many of them off-hand prescribe this condensed milk and have not the slightest idea of the amount of sugar, proteid or fat the child is getting. And between the average medicine and milk, the latter is far more important for the child.

For general use in infant feeding cow's milk is the best food we can have if mother's milk is not available. It is important to know the per cent of the different elements in the two milks. This follows as given by Dunn:

	Cows	Human
Fat	4.00	4
Sugar	4.75	7
Proteid	3.50	1.50
Salts	.70	.20
Water	87.05	87.30

It is taken for granted that only the cleanest milk will be used, that it is herd milk rather than from a single cow, and that it will have the required 4 per cent of butterfat. The question often arises as to the effect of heat on the milk, as to whether it is hurt by pasteurization or by boiling. As to the first, most authorities hold that pasteurization does not make the milk harder to digest, while it does kill most of the microorganisms. As to the boiled milk, there has been a wide divergence of opinion. There is no evidence of rachitis from the use of milk boiled for two minutes and it undoubtedly makes a softer and more flocculent curd, making the proteid digestion easier. In several cases of proteid indigestion I have used boiled milk, bringing it to a boil and keeping it there for two minutes. The possibility of scurvy is present here, but can be guarded against by the use of fruit juices and vegetables.

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The number of infants who cannot be fed on cow's milk in some modification is very small, in fact, taken before their digestive apparatus has been entirely upset by switching from one proprietary food to another every few days, there are probably no children who cannot thrive on cow's milk if the fat, proteid and carbohydrates are mixed suitably to its digestive power, as shown by the stool and the weight curve.

Probably the method by which we can have the widest variation in the per cent of the food elements and which is used very much at present is the gravity cream and skimmed milk method. Personally I find the methods of Holt to provide all the range necessary but this is used more and should be known by all. The following table gives the percentage of the ingredients used in this modification.

	Fat	Lactose	Proteid
Gravity Cream	16.00	4.50	8.20
Skimmed Milk	0.00	4.50	3.20
Lactose	0.00	100.00	0.00

The simplest calculation is that worked out by Dunn and is based on a mathematical proportion by which all problems in dilution may be solved. It is: That the quantity of an ingredient is to the total quantity of the mixture as the per cent of any element in the ingredients is to the per cent of that element in the mixture. Thus it is that the ounces of an ingredient required to give a certain percentage is found by

dividing the percentage required by the percentage of the element in the ingredient and multiplying by the total number of ounces in the mixture as follows:

We want fat four, lactose six, proteid three. The baby is taking four ounces at a feeding and seven feedings daily, making twenty-eight ounces total. Gravity cream is 16 per cent fat, therefore $x = \frac{4}{16}$ of $\frac{28}{1}$ or 7 which is the number of ounces of cream necessary. Proteid being the same in both the cream and skimmed milk we will find the total number of ounces of both required to give the 3 per cent proteid. $x = \frac{3}{3.2}$ of $\frac{28}{1}$ or 26, the number of ounces of both the cream and milk necessary to get the desired proteid. 26 – 7 is 19, the ounces of skimmed milk. $\frac{26}{28}$ of $\frac{4.5}{1}$ is 4.16 per cent of sugar in the 26 ounces of milk. Six, the per cent desired, minus four, the per cent we have in the milk, gives us two per cent more to be added. $x = \frac{2}{100}$ of $\frac{28}{1}$ or $\frac{56}{100}$ of an ounce to be added. As two rounded tablespoons of lactose equal one ounce, here we would want a little over one.

By modification with alkalies it has been proven that the alkali acts chemically by combining with the casein of cow's milk, thus delaying the precipitation of the curd, which is more flocculent than normal, and easier acted upon by the gastic juice. Lime water, sodium bicarb, or sodium citrate, any one of them can be used as the alkali. Many children do not need this addition, but I believe it is used in practically all cases. Starch dilution with barley water and oatmeal water, act similarly to the alkalies and I find their use as a diluent invaluable.

The use of other soluble carbohydrates other than lactose for milk modification are very good. Some believe the addition of dextrose or dextri-maltose makes the casein curd softer and easier to digest. This is questioned, but all agree that in cases of malnutrition, where the patient is intolerant to lactose and cannot get the benefit needed from the fat in the diet that the dextri-maltose is invaluable as it is the easiest sugar to digest, and can be immediately used for energy production without undergoing further change. In this method of modification I have used both Mellin's food and Mead's dextri-maltose. There is only one objection to Mellin's that I have seen and that is that the parents soon get in the habit of going by the directions in the package rather than by frequent visits to the doctor. This is really a more serious objection than might appear on the surface. If the child does poorly it is the doctor's fault while if it does well Mellin's gets the credit.

In closing I want to emphasize the importance of starting the baby properly. If you can so regulate the child's diet that you have a healthy child at two years of age with no digestive trouble, this same child will continue to advance and be healthier and less likely to the ordinary troubles of childhood than the child not so taken care of in the early period of its life. (1922)

Recent Advances in the Treatment of Diabetes Mellitus

G. A. CHICKERING, M.D., Hutchinson

A new chapter has been opened concerning the treatment of diabetes mellitus. This is of especial interest since therapeutics, for the first time, seems to have a valid reason for having a part in the discussion of the subject. Heretofore, all progress in being able to care for the diabetic has come through the therapeutic assistant, dietetics. It at length had almost come to be accepted that the treament of diabetes had only to do with the biochemical process dealing with protein, carbohydrate and fat and the resultant calories. But, with the bringing forward of iletin, the internal secretory product of the pancreas, a new hope has been awakened, looking toward a therapeutic agent as a prominent factor from this time on in adding years and enjoyment to the life of the diabetic. However, those best fitted to speak on the subject are so well guarded in putting forward their estimates, at this time, of the value of iletin treatment that the rest of us are left to that group at one side with little information but a great deal of interest.

Previous to 1914 the care of the diabetic was so unsatisfactory that to confirm a diagnosis of diabetes in a patient was to insure him of an early death unless he happened to belong to a type of diabetes occurring in the later decades of life when a more or less constant glycosuria seemed to have little influence on the welfare of the patient. It was considered scarcely worth while to undertake to treat diabetes in a child. In fact, Joslin in 1918 summarized the situation in these words: "At the beginning of 1914, the outlook for diabetic patients was depressing. The statistics of the Massachusetts General Hospital showed that in

the preceding sixteen years for each 100 diabetics admitted, 28 were discharged dead, a record which duplicated the experience of the hospital between 1824 and 1898. Physicians dreaded to place their patients in an institution lest the treatment there prescribed prove more disastrous than that adopted by the patient's fancy. Surgeons dodged the diabetic, while the obstetrician was out and out afraid of diabetes and urged pregnant women to have abortions. The neurologist, dermatologist and ophthalmologist would throw up their hands at complications within their respective spheres and exclaim, 'cure the diabetes and then we will help the patient.' It is hard to realize that these conditions prevailed only four brief years ago."

The Allen Starvation Treatment marked the starting point in scientific cure of the diabetic and to Allen, in a large way, is due credit for the appreciation of the pathology of the morbid process as it is known today.

The benefit of this method of treatment is rather strikingly compared to that of the old regimen by Joslin in saying that five years after beginning treatment 7 out of 97 children under 10 years of age were alive. However, it is appreciated by all having to do with the care of diabetics that the general tendency is for the patient more and more to lose his tolerance for carbohydrates. When tolerance has reached a low point the resourcefulness of the physician is taxed to the utmost.

Because of the difficulties presented in the care of the patient in this condition, Newburgh and Marsh of the University of Michigan brought forward rather an astonishing modification in the treatment of diabetes. Heretofore fat was considered a source of great danger in the diet of the diabetic and particularly so in the severe type. These investigators came forward with the dictum that in case the patient can burn any carbohydrate at all, and all cases can be so adjusted as to use some carbohydrate, the furnishing of heat and energy may be obtained from fat similarly as it is in the case of carbohydrate food. The clinical demonstration of this theory when applied to the dietary of a patient is quite striking. An emaciated patient with a severe acidosis and impending coma is dieted in such a way that glucose burning ability is restored. Treating him without reference to high fat dietary it was found that the most food that he could take without showing a glycosuria would yield but 953 calories. The ultimate outcome with this procedure could only be bad and there was nothing left but that the patient still further draw on his body protein and continue to emaciate.

In contradistinction to the type of diet as here tried, it was found that by pushing the fats all that his tolerance would permit the patient could receive food sufficient to yield 2000 calories, and, thus, obtain an adequate diet. However, a hair breadth escape from a starvation to a living diet is not without its accompanying danger, that from acidosis. To this danger two sources contribute, (1) the imperfect metabolism of fats whereby ketogenic, or fatty acid bodies are formed when fat metabolism is not completed to the formation of the end products, CO_2 and H_2O; (2) the formation of ketone bodies from the imperfect breaking down of the protein molecule.

The danger from acidosis and coma from fat in the diet of the diabetic has been recognized a great deal longer than the limits of its safe usage have been understood. The high fat and low protein and carbohydrate diet of Newburgh and Marsh has been given a mathematical expression by Woodyatt of the Sprague Memorial Institute of Chicago in an article entitled "Objects and Methods of Diet Adjustment in Diabetes," in the August, 1921, number of *Archives of Internal Medicine*.

Here, recalling that fat burns in the fire of carbohydrate kindling, he points out the means by which, having determined that the tolerance of a patient for carbohydrate is a certain amount, it is possible to estimate what is the greatest amount of fat which can be completely metabolized by the body for purposes of heat and energy production. He points out that, although glucose is the form in which all carbohydrate food is used by the body, carbohydrate food is not the only source of glucose. The metabolism of the protein molecule furnishes a glucose factor, likewise that of fat furnishes a glucose equivalent. When the protein molecule is metabolized .58 results in the formation of glucose. When fat is metabolized .10 results in the formation of a glucose equivalent. So, the carbohydrate tolerance of a patient is the amount of carbohydrate without glycosuria which may be ingested, taking into account the carbohydrate of the food taken as such and adding to this the glucose element derived from protein metabolism amounting to .58 of the protein, plus the carbohydrate equivalent from fat amounting to .10 of the ingested fat.

If, in considering carbohydrate tolerance, attention is paid but to carbohydrate ingested as carbohydrate the contribution from protein and fat elements of food is likely to results in a glycosuria.

For the reason that the glucose element of food cannot be considered as being derived from but carbohydrate, it is necessary to determine the relationship which is borne to the other food elements, protein and fat.

As regards protein, it may be said that as a result of metabolic processes .58 of protein food goes to form glucose. The other .42, after being broken up into amino acids is largely used for replacing the wear and tear of tissue cells. If this .42 is so small in amount that wear and tear cannot be supplied from the food the deficiency must then be made up from body cells and emaciation follows.

As regards fat, .10 of the fat of the food is metabolized into a glucose equivalent and the .90 is available to be further oxidized for purposes of heat and energy, provided that enough carbohydrate is being used by the body to insure its complete oxidation into carbon dioxide and water. Otherwise, ketogenic bodies are produced.

In order that fat may be substituted for carbohydrate for the production of heat and energy, it is necessary that the ratio of fat to the carbohydrate which is actually being used in the body must not be greater than 1.5:1. If this ratio is exceeded acetone bodies are formed as an evidence that fat is smoking.

In cases in which it is hard to have the patient obtain a sufficient caloric yielding diet the additional calories obtained from each additional gram of fat metabolized are considerable since the metabolism of 1 gram of carbohydrate yields 4 calories and that of 1 gram of fat 9 calories.

So, a properly regulated dietary calls for a sufficient quantity of protein that wear and tear body tissue cells may be replaced. Excessive quantity is undesirable. Carbyhydrate food should be used to the extent to which the tolerance for carbohydrate as indicated by the sum total of the three contributing factors permits. Finally, depending upon the necessity to obtain additional heat and energy, fat may be used insofar as carbohydrates in the body are insuring the complete combustion of the fat.

Woodyatt has done much toward the application of a theoretical dietary in practical terms. A diabetic whose carbohydrate tolerance is not easily harmed does not try to the utmost the ingenuity of his physician as does one whose urine it is difficult to keep sugar free. Probably no mathematical formula will ever be compiled, the following of which will lead to the successful treatment of all diabetics. However, application of the chemistry of metabolism clinically to the problem of the dietary does help.

It is in connection with the best understanding of the dietary requirements of the individual patient that pancreatic extract may be most helpfully used. By this is meant that in order to help the patient it is necessary to know how much the patient can help himself. The amount of sugar in the urine at any one time does not necessarily indicate anything concerning the ultimate ability of the patient to burn glucose, but the amount of sugar excreted during a known time when the patient is on a constant diet of known value does tell something. If it can be determined what his need is then it is known where treatment must begin. A diabetic following the dictates of his own appetite or when he is improperly treated shows a glycosuria which is probably out of all proportion to his actual ability to burn carbohydrate when he is under proper treatment.

Present knowledge of the hypodermic use of pancreatic extract would indicate that, from a therapeutic and economic standpoint, it should be used in cases in which, under proper dietary regulations, the carbohydrate tolerance is low. The patient who can utilize his food to obtain as much as 2000 calories and have a satisfactory blood chemistry probably had best be content with present conditions.

Pancreatic extract, the trade name being iletin, as it is put out by Eli Lilly & Co., of Indianapolis, is an aqueous extract prepared from the adult pancreas of animals. It contains the internal secretions elaborated by the Islands of Langerhans. When kept cool it is fairly stable and will keep for at least seven weeks. Due to the preservative tricresol, it is quite painful for a few minutes when injected subcutaneously. It produces falling of the blood sugar content due to hydrolysis of the glucose of blood into glycogen in the liver and muscles. A fall of the blood sugar content begins in a half hour after each injection and continues, reaching its maximum effect in four hours' time.

Indicating that cellular oxidation is increased under the influence of pancreatic extract, it is found (1) the respiratory quotient is raised, (2) acetone bodies in lessening amount are formed in the urine.

Pancreatic extract or iletin is standardized according to the "unit" and put out in two strengths, one being twice as potent as the other. A unit is that amount of extract which induces the lowering of the blood sugar content of the rabbit from normal, which is about .137, to .045 per cent, which usually induces convulsions. One cubic centimeter of the weaker strength contains 5 units while that of the stronger contains 10 units.

In preparing to use pancreatic extract in treating a patient, it is best to know all that one can concerning the ability of the patient to utilize food. The carbohydrate tolerance, at least, is fundamental. Along with this frequent blood sugar estimations should be made, in order that, at the time of instituting treatment, it will be known what is the lower and upper level of blood sugar findings, that of a fasting condition and after the ingestion of the regular meal. The former is carried out by taking a specimen of blood for blood sugar determinations in the morning before the patient has eaten. In this way 12-14 hours has elapsed since the ingestion of food and the blood sugar percentage represents a low level. The latter is obtained by taking the blood sugar estimation four hours after the ingestion of the mid-day meal. The blood sugar level is probably at its height at this time of the day.

The degree in which the patient's blood sugar percentage is above normal, that is, above .08 to .12 per cent, helps in estimating what the amount of the initial dose of pancreatic extract should be. To give a dose that will cause the patient's blood sugar concen-

tration to drop below normal is a dangerous thing and necessitates the immediate provision of carbohydrate that is readily assimilated, such as orange juice or glucose given intravenously.

For this reason, when treatment is first begun blood sugar determination should be frequently made. Unless the blood sugar percentage is quite high the initial dose of pancreatic extract should probably be but a very few units. It is given fifteen minutes to a half hour before meals. When a blood sugar content about normal has been obtained through the selection of a proper dosage the carbohydrate of the food can be increased a few grams at intervals of 2-3 days until sugar appears in the urine. The dose of pancreatic extract is then increased. In this way can be built up gradually a dietary that is adequate in caloric content.

It is probably well to be reminded in thinking of pancreatic extract as a cure for diabetes that the word "cure," when used in a therapeutic sense, has its derivation from the Latin verb, *curo,* meaning: To take care of. In truth, treating diabetes does involve a taking care of every day.

As this method of treatment becomes further established much more will be known about it than is known today. One question of interest is "When followed during a long period of time, what influence has treatment on the inherent secretory function of the Islands of Langerhans at the time treatment was instituted? Is it increased, decreased, or influenced not at all? (1923)

The Anemias

J. L. LATTIMORE, M.D., Topeka

The topic "The Anemias" could cover much ground and yet bring out nothing of interest, so in this paper I will only take up and discuss briefly some of the salient features from a comparative standpoint of three types of anemias that we meet with rather commonly in our practice.

Certainly it is true that we are recognizing more cases of anemia than formerly. Whether it is because we are now closer observers, whether the patients come earlier or whether laboratory aids give us an insight to the condition, matters little; it is a fact that we see more, rather recognize more, anemias than formerly. Due to these facts probably all combined, we are obtaining a higher percentage of cures in the secondary anemias, while in the incurable anemias we are getting a longer period of prolongation of life with the attendant comfort and ease.

Pernicious anemia, with our present knowledge an incurable, fatal disease, takes the leading role of the different types of anemia. The mode of onset, by the very nature of the disease is slow up to a certain stage, at which time the patient is conscious of the fact that something is radically wrong and then consults the physician. It is a difficult thing to say whether the blood changes are the earliest symptoms or the spinal cord changes. I have examined patients that show very definite general blood changes, yet showing no spinal cord involvement of pernicious anemia, while on the other hand many cases present as the first noticeable symptom the cord involvement. For the greater per cent all cases presenting themselves for diagnosis and care have already undergone considerable general blood changes and a careful search will reveal a certain amount of sclerosis of the cord, evidenced by numbness and a tingling sensation in the fingers, hands, toes, etc. Other conditions associated with pernicious anemia are achlorhydria and glossitis.

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Coming now to the treatment side of these three anemias. In one condition, pernicious anemia, removal of the spleen appears at present to offer the longer life, with better health than any other therapeutic agent.

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(1923)

Recent Advances in the Treatment of Pernicious Anemia

RUSSELL L. HADEN, M.D., Cleveland, Ohio

Every clinician realizes how unsatisfactory has been the treatment of pernicious anemia. Many different drugs and methods of treatment have been suggested. Hydrochloric acid in large doses, arsenic and transfusion have stood the test of time as therapeutic measures of proven value. Conner has recently reported promising results from the oral administration of gentian violet and acriviolet. The measures employed have however, only aided in initiating or prolonging remissions. They have not materially altered the inevitably fatal course of the disease.

Most students of pernicious anemia agree that the disease must be of gastrointestinal origin. Numerous workers beginning with Herter have thought that poisons having an affinity for the hematopoietic and nervous systems may be due to the predominance of B. Welchii in the intestinal flora. The proof offered for this view is not convincing. The same may be said for the theory that certain types of yeasts may be the causative agent. The absence of free hydrochloric acid is a constant finding in pernicious anemia. It is most probable that digestion in the absence of free acid is constantly abnormal, especially with reference to the splitting of proteins and fats. It is quite possible that such is the source of the toxic bodies in this disease.

Clinicians have emphasized that patients suffering from pernicious anemia have often taken for a long time an incomplete diet. Bohan has especially called attention to the fact that there is commonly a protein deficiency over a long period. Patients sometimes give a history of taking an excess of fats.

Koessler, Mauer and Laughlin think that changes in the viability and permeability of the intestinal wall may be important factors. Certain products of normal digestion are toxic if introduced into the blood stream. Normally the intestinal wall is an effectual barrier to the entrance of poisons into the blood. McCarrison has pointed out the very striking changes which take place in the intestinal wall as the results of vitamin deficiency. Koessler, Mauer and Laughlin produced a marked anemia in the rat by feeding a vitamin deficient diet, which they think is due to altered permeability of the intestinal wall. They state that suggestive good results have been obtained in patients with pernicious anemia by feeding a vitamin rich diet.

Certainly the most promising results so far obtained from any method of treatment of pernicious anemia are those reported recently by Minot and Murphy. They have treated a large series of patients with a full protein diet including at least a half pound of liver a day. Fats have been much restricted, and fruit and vegetables supplied in abundance but liver is seemingly the most important item in the diet. The use of liver is thoroughly justified from experimental work since Whipple and Robscheit-Robbins found that it is especially valuable in hastening blood regeneration in dogs with experimental anemia.

It is as yet not clear whether the favorable action is due to the fact that liver is a complete protein or contains some specific antihemolytic factor. Conclusions must certainly be cautiously drawn since pernicious anemia often runs a bizarre course with frequent spontaneous remissions. Clinicians elsewhere are, however, experiencing equally good results as those reported by Minot and Murphy by the proper use of the diet suggested by the Boston investigators. There is uniformly a rise in the reticulocytes and a fall in the icterus index indicating there is more active regeneration and less active destruction of red cells with the liver diet.

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(1927)

Pneumonia—Its Management and Treatment from a General Practitioner's Standpoint

O. D. SHARPE, M.D., Neodesha

It is the importance of this subject, rather than the great skill of the writer that prompts him to bring up this subject for review and discussion at this time.

Pneumonia is one of the most common, as well as most dangerous diseases with which we have to deal; and its effects are often far reaching. Its treatment from textbook standpoint, and from most every point of view, has been so varied and remedies so numerous that it is hard to get settled on a line of treatment that seems reasonably satisfactory, and one that you can rely upon with confidence. My twenty-nine years of ups and downs with this disease has centered me on a line of procedure and treatment which for many years now has served me well and I believe is worthy of note.

In the first place, some cases seem hopeless from the beginning. Sometimes from the previous enfeeblement of the patient from various causes—concurrent diseases—extremes of age, etc., as well as too long neglect. Right here I want to say that it is important that we recognize this disease early or else err on the safe side and get busy at once, informing the attendants of your suspicions and impress them with the gravity of the disease and the importance of the closest and best co-operation from them. At the same time nudge yourself under the ribs that you let no grass grow under your feet. Here, oftentimes, is where we lose valuable ground, for if we do not recognize the disease and its gravity, who is going to recognize it? Then later, as the breakers come, you, as well as the attendants feel grateful that you grasped the thing early. Here again, keep close track of every detail of your case if you are going to treat it at all.

Realizing that our treatment is not all medicine, for we cannot force the disease out with heavy treatment, but must direct our medicine and management to the assistance of nature, and avoid with great care interfering in any way with nature's effort. Occasionally we hear and read of quick cures, but I am not here to advocate any of them at present, but to preach a sane and cautious handling which I believe will save many patients. . . .

Treatment

In the first place, do not try to force a break-up of the disease by excessive treatment.

One thing early in management is to remember the contagiousness of this disease and impress the attendants with this information. In discussing treatment I would like to take up pneumonia in young children first, as it differs in some particulars from that in older children and adults—then again from the really old.

Have the air fresh in the room as nearly as is practical, also some sunshine, not much, if any, stove heat, except in real cold weather, then steam in the air, keep shoulders and arms well covered—if real young, pin a blanket around them and keep it on day and night, skimp the diet, though they should have a reasonable amount of nourishment. I usually go slow on milk unless I am sure that it is digesting well and not causing fever. I try to keep the fever at or below 103 degrees. I first give a preparation as follows: To a solution of soda in a glass, I add moderate doses of aconite, gelsemium and belladonna. This is given every two hours when awake. The soda helps keep down or control acidosis, besides keeping up the supply of alkali, remembering that every tissue of the body including the blood, is alkaline. The only exception being the production of hydrochloric acid for a short time during stomachic digestion—then a waste product of acid in urine and perspiration. The other drugs mentioned have a restraining influence on the fever as well as stimulating respiration and the kidneys, besides also the effect on cough. I feel that this prescription helps moderate the severity of the attack and especially where acidosis is present. It makes the case milder.

In case the temperature is excessive, and child nervous and inclined to spasms, I keep, by spells, putting a cool cloth on the head, and sponging the back up and down the spine with tepid water, for five or ten minutes at a stretch, until the fever is kept within reasonable bounds; at the same time, of early mornings or any other time when the temperature is low, I give three or four doses of quinine, which helps control the fever and seems to help moderate the disease. However, I don't give much if any quinine if the temperature keeps at or below 103 degrees. In case of cyanosis and apparent collapse with smothering I usually use a fried onion poultice, which appears to be life-saving at times. When through with the poultice I replace it by greasing the chest well with quinine, lard and turpentine and cover the chest with a good warm cloth of wide dimensions and several thicknesses.

As the temperature moderates, after the first two or three days, and the case has been severe, I cut down

on the above vegetable drugs, and add the digitalis to support the heart, kidneys and secretions. Sometimes have to meet other emergencies, but by holding steady, and watching all corners, children will pull through a tough siege almost as well as a grown-up, unless it might be the very youngest.

In the older children and grown-ups, much the same line of treatment is used. When I find my patient is a poor hand to keep the chest, arms and shoulders well covered, I have him put on a coat or sweater for they need that protection and it should be continuous even after the fever is gone. Older people are just as hard to keep covered as children, for many of them are in the habit of sleeping with arms out. But on account of the proximity of these parts to the seat of the disease, I think it very important to keep them well protected.

Keep bowels active, light diet, not much sweet milk while temperature is high—buttermilk is much safer, and it is usually liked better.

My soda solution is used in proportionate doses every two hours, and if the case is severe, and there seems to be strong indications of acidosis, I have them drink soda water several times daily in addition to the prescription. If fever is excessive, I give 10 to 15 grains of quinine of mornings or at a time when the fever is at its lowest ebb, and keep it up for three or four days, for as a rule that will cover the period of excessive pyrexia. I avoid if possible, coal tar products in controlling fever, as I believe it is dangerous, except when there is a good deal of nervousness and temperature is not reasonably controlled by the above remedies. Then I give an occasional small dose to help moderate the excessive temperature, and at times, at the time of break-up, if it is hard to start perspiration, a dose or two seems to give nature a hint and a boost that has seemed to help. After the first three or four days your excessive temperature gives way to a moderate one and often only a little, at the same time more stupor and delirium with very dry tongue and sluggish secretions with scant amount of urine. At this time I usually start digitalis, enough to steady the pulse, stimulate the kidneys and secretions, and hold patient's strength without trying to force matters, and await the break-up.

At times we have so much delirium and of such furious type it becomes necessary to add a little bromide and maybe a little chloral, too, but if moderate doses don't seem to settle it, then I give alcohol or whiskey if available, and in sufficient quantity to quiet, which it usually does nicely. Whatever you do, conserve the strength of your patient, even to the using of a bed pan. You will usually come out alright even with the quite old.

Sometimes you find patients who have a sick stomach and can't keep any medicine, it may be for several days. In such cases I suspect acidosis and use either enemas of soda water with other medicine if necessary, or may use Murphy's drip, to keep them from drying out too much, etc., until at such times as they can use the stomach. Also use hydrotherapy to control excessive temperature.

If having much pain or pleurisy, I usually depend upon Dover's powder, hot cloths, etc., seldom a poultice, sometimes a hot bran sack.

In these latter cases, when the break-up comes, and the temperature doesn't come down entirely, and sweating continues, I watch carefully for empyema. Don't remember to have seen a case where I didn't have considerable pleurisy.

Again, occasionally we get a case that may come nicely to the break-up, sputum loosens and comes up, etc., and the fever may waver some, then settle back and may even come higher, for a time, then look for wandering or double-pneumonia. It may be you remember your patient had a late chill, if so, add seven days to that time and hold steady for the final break-up, which will usually come nicely the same as the first one.

Occasionally you will have a case where the clearing up is not complete, but keeps a little fever and cough, sweats, etc., and if no empyema, your case is likely of tuberculous tendency or maybe only of slight empyematous output, which is slow to clear up. Keep your patient in bed—fresh air, plenty of cover, nourish well, tone up and wait. If you let this patient out, you are likely to have it end in T.B. If your patient can ever be cured, now is the time, so hang on for every interested party is dependent on your judgment.

The Very Old

Have had quite a few cases of this kind that seemed to present a different line-up.

Many of these cases start from what appears a prolonged cold—for old people with weak hearts and low vitality rid themselves slowly from a cold, and with difficulty. The real old will have a pneumonia with very low temperature and if you are not suspicious you will not notice it until too late. Suspect it early, inquire for delirium and other indications and get busy for you are likely to lose out. Yet, with due caution and care, many of these will come through. In fact, I have come to look with doubt upon some statements I used to hear—that the old are living on borrowed time, and that it matters not. Don't kid yourself to inactivity with this idea, but fight it through on its merits, as though you expect them to get well and they will often do it.

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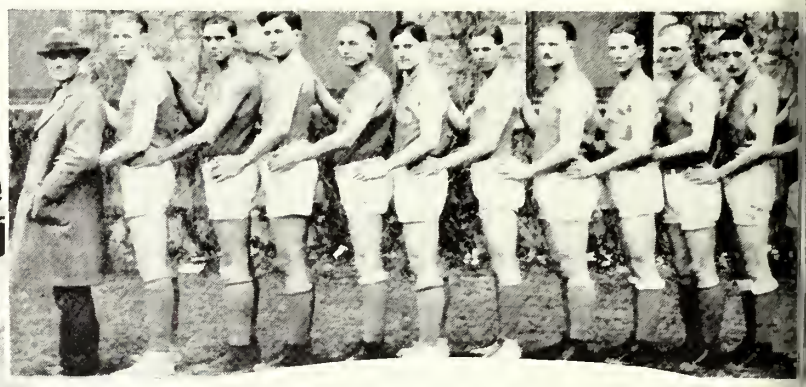
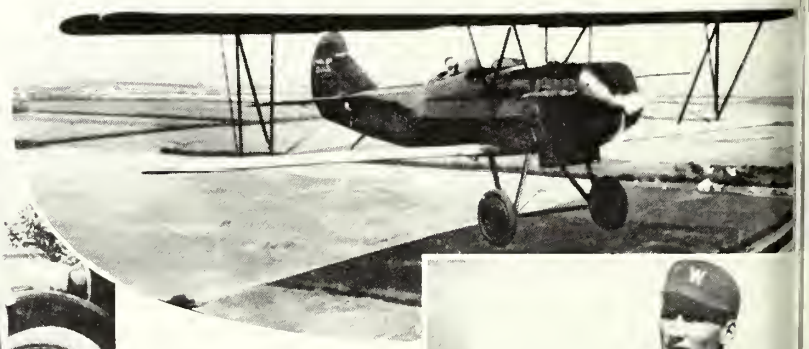
(192-i)

"The Roaring Twenties"

National AAU Basketball Champions, 1925, Washburn College.



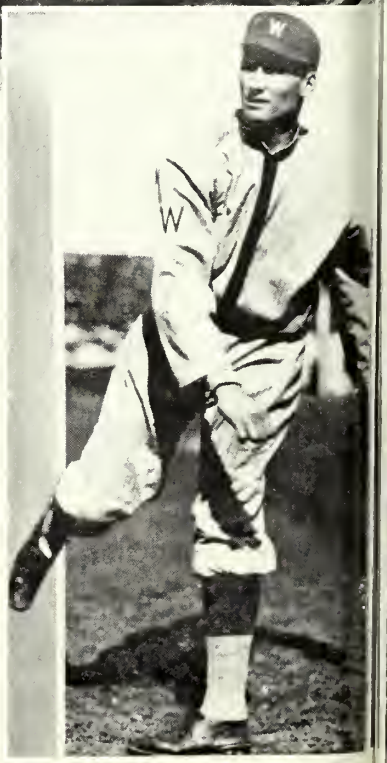
A typical experience on Kansas Highways in 1924.



Walter Beech flying Travel-Air airplane. This was the first plane built by the Travel-Air Company, predecessor of Beech Aircraft Company, (1924).

Fort Hays Normal School, "Bloomer Girls," (1925).

Former KSAC President Jardine, being sworn in as Secretary of Agriculture, (1925).



Walter Johnson, "The Big Trai Kansan who was at the peak c career with the Washington Sen in the early 1920's.

—And "The Trying Thirties"

A trio of Kansans who achieved national prominence during the 1930's.

Reading left to right:

Charles Curtis, Vice-President of The United States, 1928-1932; Alfred M. Landon, former Governor of Kansas and candidate of the Republican Party for President of The United States in 1936; Harry Woodring, former Governor of Kansas and Secretary of War of The United States from 1936-1940.

A view of the Landon Notification Parade in Topeka, (1936).

Amelia Earhart Putnam, nationally known aviatrix from Atchison, Kansas. Vanished in 1937, while on an extensive flight over the Pacific.

An Epidemiological Investigation of Jamaica Ginger Paralysis Cases

EARLE G. BROWN, M.D., Topeka

During the latter part of February, the public press carried news items from various sections of the state, relative to the prevalence of numerous cases of paralysis which had developed following the use of Jamaica ginger extract as a beverage. Subsequently, a few case reports were received by the State Health Department, although rules and regulations provide for immediate notification if unusual numbers of cases of uncertain or indefinite etiology develop. Therefore, in order to determine the actual number of cases of paralysis which had occurred, a letter was addressed to each city and county health officer on May 2, requesting him to immediately report the total number of cases that had occurred in his city or county. Replies were received from each of the health officers and 690 cases were reported. Supplemental reports received from the health officers indicated that a majority of the patients afflicted had used Jamaica ginger extract as a beverage for a number of years. For this reason, it was our opinion the paralysis had not resulted from the use of the ginger alone. "It soon became evident, therefore, that the condition must have resulted from some unknown poison or from some known poison whose pharmacologic action was so altered through the ginger or the alcohol, or both, as to render it unrecognizable, which poison in some way got into a manufactured lot of so-called U. S. P. fluid extract of ginger at a relatively recent date."

In order to determine the relationship of ginger to the development of the paralysis, case histories were secured of 113 patients. These histories were secured and the patients examined by representatives of the state, city and county health departments and physicians in private practice co-operating with the state health department. The period of onset ranged from February 10 to April 5, the greater number occurring during the last two weeks of February and the first two weeks of March.

Case reports were received as follows: City of Wichita, 402 and Sedgwick County, 23; Butler County, 64; McPherson County, 30; Cowley County, 22; Saline County, 19; Lincoln County, 15; Norton County, 14; Marion County, 11; Sumner County, 9; Ellsworth, Kingman and Russell counties, 8 each; Ford County, 7; Reno County and City of Hutchinson, 2 each; City of Topeka and Shawnee County, 2 each; Montgomery County, 4; Harvey County, 4; Clay and Barber counties, 3 each; Jewell, Osage, Morris, Lyon, Elk, Wilson and Rush counties, 2 each and 1 from each of Clark, Cloud, Crawford, Bourbon, Labette, Meade, Mitchell, Pottawatomie and Rooks counties.

All of the patients interviewed were of the white race with one exception. It is believed this ratio was approximately the same for the total of reported cases.

The great majority of patients afflicted were males, the ratio being approximately twenty to one. Of the 113 patients interviewed, five were women and ranging between nineteen and twenty-nine years of age. The age of the youngest male reported was given as seventeen years. One hundred of the 108 men were over thirty years of age, seventy-two of them in the age group between thirty and forty-nine years.

Fifty of these patients admitted they had used Jamaica ginger only, as a beverage, while fifty-nine stated they had used Jamaica ginger, bootleg whisky or alcohol. One patient stated he had used only alcohol and three denied the use of Jamaica ginger or other alcoholic substance as a beverage. One of these men, however, did admit he had used one teaspoonful of Jamaica ginger extract for the treatment of what he termed a "stomachache" and a second admitted the use of a cup of ginger tea for the treatment of a stomach disorder. Only two of the patients interviewed, therefore, did not admit having used some form of ginger previous to the development of the paralysis.

The period of onset of the paralysis following admitted use of the ginger extract ranged from two days to more than twenty-one days. The average time appeared to be about fourteen days. Histories were secured from nine patients who stated they had last used Jamaica ginger more than twenty-one days before the first symptom developed. In many of the cases, nausea, vomiting, abdominal pain and diarrhea occurred. This condition usually lasted only one or two days.

Only seven of the patients stated the paralysis had not interfered with the performance of their usual duties. Although unable to work, because of the paralytic condition, thirty-seven had not been confined to bed. All other patients, according to information received, had been confined to bed for periods varying

from one to twelve weeks; fifty-six averaging approximately five weeks confinement to bed at the time the histories were secured.

The symptoms and physical findings were remarkable in their uniformity. The quantity of Jamaica ginger consumed, apparently was not a deciding factor in the development and extent of the paralysis. As previously stated, one patient gave a history of having used a single teaspoonful of the extract, yet developed a definite paralysis of both legs with foot drop and partial paralysis of both forearms and wrist drop. Almost without exception, when a patient was asked as to what symptom he noticed first, he would reply by taking hold of the calf of his leg and saying "cramping pains in here." In the majority of cases, the "cramping condition" was present from two to five days before the paralysis developed. Many patients stated they realized paralysis had occurred when they were unable to move their toes and their "feet flopped" when they attempted to walk. Patients who developed paralysis of the arms and hands complained of similar "cramping pains" in the muscles of the hands and forearms, although of lesser degrees. These pains occurred on an average of seven to ten days after the muscles of the legs were attacked. Upon examination, the disability of the hands and forearms was never so marked as in the feet and legs.

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(1930)

Editorial

Changing Views in the Treatment of Goiter

ARTHUR E. HERTZLER, M.D.

There is a marked shifting of viewpoint among surgeons as to the indication for operation on goiter and particularly as to the amount that should be removed.

Until recently the chief indication was the relief of toxicity, and the measure of this toxicity was the basal metabolic rate. If the toxicity was relieved the operation was pronounced a success. If the toxicity returned another whack at the goiter was indicated.

Cosmetic considerations sent some persons to the surgeon. The goiter, in their minds, caused no trouble but the bulge in the neck was unsightly. This applied chiefly, of course, to young persons for whom the great adventure was still only a hope. The young matron was much less sensitive to a deformed neck.

It took definite pressure disturbances to send the usually aging matron to the surgeon. This viewpoint is undergoing a rapid change. This change is due to two factors: It has become generally recognized that the supposedly innocent goiter which never has shown toxic symptoms nor ever experienced any pressure annoyances may cause—in fact they are certain to cause —a terminal cardiac failure. This relation to cardiac disease has caused some surgeons to do a complete removal of the thyroid gland for so-called intrinsic cardiac disease.

Whatever the result of operations on the thyroid may be on diseases of the heart, it has produced a general recognition that the thyroid is not as essential to the welfare of the patient as we were wont to believe. That the thyroid is of little use to the adult is quite startling but sufficiently demonstrated beyond a doubt.

We are presented therefore with two new factors: The recognition that a simple goiter is leading the patient to certain terminal cardiac failure and that the patient will get along very well without any thyroid gland at all comes as a happy combination. The excuse for operation together with a technically possible operation, makes a most pleasing combination for the surgeon.

Like most pleasant things there is a fly in the ointment. In young persons complete "ectomy" produces disturbances in development and nutrition. As a general rule the age of twenty-five years may be accepted as the dividing line. In the very toxic diffuse goiters very radical operations are inexpedient making lobectomies or partial resections advisable.

It is in the colloid goiters that the very radical operations are chiefly indicated. In such cases the least one can do is to remove every lobulation and visably affected part of the gland. If this rule is followed there remains usually only a bit of thyroid tissue, the size of a Boston-baked-bean at the upper poles.

The amount usually left in operations for toxic goiter is the size of a little finger on either side. This diseased tissue results after a recurrence of toxic

symptoms, in many cases not until five or ten years later. This is well understood because the returned patient emphasizes it. The point not sufficiently emphasized is that even though toxicity does not return the remaining part of the gland is sufficient to produce fatal cardiopathies. This is even more important in colloid goiters which have never shown toxicity. In such cases the remaining part of the gland may not emphasize its presence through its size and one must wait ten or twenty years for the appearance of a failing heart, and when this time comes the relationship is likely to be overlooked.

Therefore a goiter in the adult is to the patient a menace, no matter whether it has shown toxicity or not, and tends ultimately to cause death from cardiac failure. (1935)

Laboratory Control in the Use of Sulfanilamide (Prontosil)

J. L. LATTIMORE, M.D., Topeka

Considerable data has been accumulated, both experimental and clinical on the use of sulfanilamide in the treatment of various coccal infections. At present it appears to have its greatest value in the treatment of hemolytic streptococci, however various reports have been published stating that the drug has definite therapeutic beneficial effect upon pneumococcal, meningococcal and gonococcal infections. In 1915, Foerster claimed good results from the drug in staphylococcal infections, since then various claims have been made for its value in typhoid, para-typhoid, urinary and dysentery infections.

With the wide use of the drug, there will be a tendency not to consider many important factors, such as toxicity, individual susceptibility, contraindictions, ample dosage, proper diagnosis and mode of action of the drug.

The drug has a rather low toxicity, no fatalities having been reported to date. It does produce a moderate cyanosis, a mild depressing effect and a low grade fever. The drug is distributed throughout the body and is found in all fluids, including the urine, gastric contents, bile, pancreatic juice as well as the blood.

Individual susceptibility has not been described in the literature so far as I know. Experience with other drugs within the past few years will at least serve to warn us against the indiscriminate use.

The main contraindiction in the use of sulfanilamide is nephritis. Certainly in grave infections, one at times disregards complications. As a rule however, the patient should be checked for possible nephritic changes, the blood urea being the first of the nitrogenous waste products to be retained, would indicate that the blood urea should be a routine in all cases that are to use sulfanilamide.

Acidosis is another complicating factor. A check on the carbon-dioxide combining power of the blood should also be a routine. A combining power of less than forty-five volumes per cent, should first have the acidosis corrected. As a routine, most physicians administer sodium bicarbonate with each dose of sulfanilamide. One of the complicating conditions observed in some cases is a rash, identical in appearance to measles. This rash appears about the ninth to tenth day and disappears within about thirty-six hours.

Ample dosage of the drug appears to be of vital importance. As a rule, the average size individual will require about sixty grains as an initial dose to obtain a blood level of ten to fifteen mgm. The only way that this can be controlled is by blood sulfanilamide determination. The test is not especially complicated but fresh solutions are essential. In children the usual dosage is about half that for the adult. Probably the drug deteriorates upon standing for several months, accounting at times for failure of obtaining the desired blood level.

Certainly, no drug has been developed within the past few years, unless it is insulin, that requires a closer laboratory control than the use of sulfanilamide. First and of great importance, is the correct bacteriological diagnosis. As a routine, I have found brain-broth to be the most satisfactory medium for blood culturing. Some streptococci grow rather slow, all cultures should be carried for at least three weeks. It is also important to make repeated blood cultures in those cases that give negative results. Upon completion of the use of the drug, blood cultures should be made for seven consecutive days.

Summary, Laboratory Aid

Correct bacteriological diagnosis.
Control of acidosis with CO_2 determinations.
Determination of nephritis.
Control of blood sulfanilamide. (1937)

Letters from a Kansas Doctor to His Son

JOHN A. DILLON, M.D., Larned

My dear Boy:

I am feeling in a very chastened mood this morning and I fear this letter will probably be a rather humble document. You naturally ask, how come? So I will unburden myself. As no doubt you are aware Contract bridge has spread its deadly tentacles about us out here as it has in all the towns and villages of the state. Ely Culbertson has taken the place of the family Bible, "Good Housekeeping," and "Advice to Expectant Mothers." Lydia Pinkham's Vegetable Compound literature in all its intimate glory was never devoured as are the works of Ely today. Housewives who only got to the second year in high school and never could remember the capital of Washington, D. C., are taking Contract lessons Tuesdays and Fridays and attempting to memorize 380 pages of hints to bridge players. Dishes go unwashed and babies gurgle in uriniferous environment while mothers discuss bridge over the back fence. This has been almost exclusively a ladies' obsession but a few of my moron male friends are also taking it seriously. That is they think they are until they run up against the ladies who have consecrated their lives to the calling. Then they fall flat.

Very few men are good cooks because they cannot see the necessity of accurately following word for word and measure for measure a recipe containing fifteen ingredients meant to ultimately become a cake or piccalilli. But a woman can do this without an effort and incidentally, while doing this answer four telephone calls and make five of her own. By the same token she takes her bridge just as literally and just as seriously. Sooner would she cut off her right hand honor tricks. A few months ago Ely was a bit more than open two spades with less than five and one-half liberal and permitted this opening on four and one-half honors, but in his last regular monthly edition he probably was being scratched by his winter flannels and in a moment of irritation raised the requirements. But does the bridge fanatic mind this? Not on your life.

A woman may go to sleep Sunday night eminently satisfied with her Contract and wake up the next morning to find her bridge knowledge as obsolete as a bustle or a long tube nursing bottle. Ely justifies these changes of late by a sort of psychoanalysis philosophy. He says one should take into consideration the temperament, disposition and habits of the partner and modify the bidding accordingly. For instance if you are playing with a spinster not vulnerable from any angle and she crisply bids one heart after counting the honors on her fingers three different times one may safely assume the lady has two and one-half honor tricks at least. On the next round of bidding she will enumerate her playing tricks in the same manner so that every player knows she is bidding consistently. In playing with this type of individual and assisting her bid to game I usually feel like laying my dummy hand down and silently slipping under the table until the first shock is over. Again Ely says if you have as a partner a moon-faced loud laughing restaurant man who opens the bidding with the jack and five small clubs do not get excited even if you have three honors in your hand. In other words this eminent authority urges that the bridge player who seeks to become adept at the game should learn besides the 380 pages of instruction the habits, family history, and complexes of the players with whom he consorts. No man who has a business to look after and an overdraft at the bank can hope to do this.

All this has been written you leading up to the explanation of the chastened condition in which I find myself. I went with your mother to a bridge party last night with good will toward all men. I shook hands with the hostess and beamed right and left on entering the room. I even cracked a joke and laughed appreciatively when no one else was inclined to do so. There seemed to be something strained in the atmosphere which I could not understand until the duplicate bridge boards were produced. Then I realized the ladies were bent on showing up the novices in the pastime. As you probably know in duplicate a board is played at one table and the same board passed to the next table. As the evening wore on I was astonished and chagrined to note the comparative score I was making. After triumphantly negotiating a bid of two diamonds I would discover the previous players of the same hand had made a small slam in spades. In the estimation of my opponents I sank lower and lower in the scale of intellectuality and partners drew to one side after each game and talked in low tones while looking sidewise at me. In desperation I feebly attempted another funny story which also failed to register. While nervously reaching across the table for a cream pitcher I upset my coffee in a woman's lap. It was hot coffee and naturally it annoyed her. Your mother, good soul, attempted to defend me as usual by telling of the attack of Flu I had last spring which some thought was brain fever. The hollow cough I gave now and then substantiated the fact there was also a physical reason for my poor showing. My spirit was broken

and I wended my way home wondering when the authorities would find out the horrible mental deterioration that had taken place and insist on doing something about it. I hadn't the nerve to put the cat out as has been my custom at night but quietly slipped into bed. My sleep was fitful and disturbed. I dreamed that I was a grand slam in wild pursuit of a bridge amazon who fled desperately as I tried to murder her with eight honors which I brandished over her head. I awakened in a cold sweat, took some calomel tablets and went back to sleep. As I said before this is the day after and I must confess to a pronounced hangover.

There was a time when friends met together in homely fashion, played cards, chatted about the baby's tooth or the reason for the poor results in the last batch of home brew. All this has changed. There are still the purring amenities when guests arrive and voluble protestations of an enjoyable evening when they depart. But in the *interim* while the battle rages the cold blooded intensity is a thing to marvel at. It is no place for fiancées, and husbands and wives are very apt to drift further apart. Depression may come and go but no dyed in the wool contract player will give it a passing thought when a glance at his thirteen cards shows three aces and a couple kings. Maybe more people should play the game. Maybe I am morbid and not fit to judge its merits. Be that as it may, sometime I hope to meet this man Culbertson face to face. When I do my present plan is to snarlingly throw myself at him and bite a chunk out of the calf of his leg. On second thought I can see that this would do no good. Possibly I had better admit a fact that few men care to admit and that is the women are just too durn smart for us.

Love,

Dad.

P. S. This last sentence will please your mother who by the way is a keen student of the game. (1934)

The Insanity of Hamlet*

C. F. MENNINGER, M.D., Topeka

Life in all its forms, physical and mental, morbid and healthy, is a relation; its phenomena result from the reciprocal action of an individual organism and of external forces; health is the consequence and the evidence of a successful adaptation to the conditions of existence and imports the preservation, the well-being and development of the organism, while disease marks a failure in organic adaptation to external conditions and leads to disorder, decay and death. The harmonious relation existing between the organism and its environment which is the condition of health may be disturbed either (1) by a cause in the organism; (2) by a cause in the environment, and (3) by cause or causes in both. We hear it often said that a person's mind is broken down in consequence of adverse conditions of life, social or physical. In all these cases it can very certainly be presupposed there was a weakness in the nerve element either inherited or acquired, which has cooperated. For were the nervous system without flaw or infirmity—in a state of perfect soundness and in possession of that reserve power with which it does adapt itself within certain limits to the ever varying external conditions, it is certainly not likely that unfavorable circumstances would be all sufficient to so disturb the relation as to initiate mental disease. What we desire to emphasize is that external causes alone very rarely produce mental disease, but where there is a concurrence of causes, arising partly within the organism and partly without—an unfavorable action from without conspiring with an infirmity of the system within, establish in the largest percentage of instances that disorder and discord known as insanity. And this applies not alone to insanity but to all diseases to which human flesh is heir. Why do not all persons take consumption? Why do some experience an immunity to infection from any contagious disease? Why are not all persons infected with parasites? It is explained by the same biological law that gives us the reason why a clay bank will not grow sweet-potatoes and an ashpile raise earth-worms. Great mistakes are very often made, even by men of culture in fixing upon the supposed causes of disease in particular cases. A single prominent event is selected as in itself effective to explain the whole disaster, when that event alone was perhaps merely one in a whole train of causes. A series of external events in concurrence with steadily operating conditions within—but not a single event—an accident, a sorrow, or need or adversity—can alone be regarded as adequate cause for insanity. When we are told that a man has become insane or mentally deranged by sorrow: we

* Read before the Saturday Night Club, at Topeka, Kansas, October 18, 1890. It is interesting to note this paper was prepared and given by a physician before the birth of two sons who later entered psychiatry.—Editor.

have not sounded the cause if we stop there. How is it that another who undergoes an exactly similar adversity or one of even greater degree does not go mad? The entire causes could not possibly have been the same where the effects were so different.

The germs of insanity are often latent in the foundations of the character—may reach back through a lifetime or have its root in the foregoing generation. Man gets much from his parents in addition to the spark of life. His father, his mother, his grandfather, his grandmother, are latent and declare themselves in him: and it is on the lines thus laid in his nature that his development will proceed. It is not by virtue of education so much as by virtue of inheritance that he is brave or timid, generous or selfish, prudent or reckless, boastful or modest, quick or placid in temper. What would you think of a child's nervous make-up and mental equilibrium whose mother upon the sudden death of her husband whom she loved to extremes, would marry in indecent haste her late husband's brother by name but not in quality of person or character? Would it be likely that we would find a well balanced mind in the son of this mother who would urge him to join in her marriage festivities and rejoicings "Ere yet the salt of most unrighteous tears had left the flushing in her galled eyes." What could a son inherit from his mother who would marry within a month her husband's, his brother's, murderer? He may have received a high degree of culture from his schoolmasters but his inheritance from his mother offsets all training in his mental sphere. Breed has a more vital influence on character and mentality than training or culture. We look to the tree for fruit after its kind and we cannot be persuaded that grapes will ever grow on thorns or figs on thistles.

Facts which establish the reality of insanity beyond a doubt in the opinion of medical witnesses who have spent years in the observation of the insane have been time and again questioned and argued to be mere feigned or simulated symptoms and capable of being explained without resorting to the theory of insanity. The celebrated trial of Abner Rogers in Massachusetts is one in point. In this case the facts proved beyond all doubt that he was insane, yet the prosecuting attorney sinking under the difficulties of a bad case, disposed of the facts by arguing and proving that these symptoms were not real but only feigned. Can simulation of insanity be detected? The common opinion is, among those who are at all qualified to form such an opinion, that sufficient opportunity being given simulated insanity can always be detected by those who have such practical knowledge of the disease. Was Hamlet insane or was he a mere simulator?

> "How strange or odd soe'er I bear myself—
> As I, perchance, hereafter shall think meet
> To put an antic disposition on—"

These three short lines have been productive of much mischief—much argument. It is a clever bait and many a fish that swam classic seas thoughtlessly bit at it and was caught. Dr. Johnson could see in the madness of Hamlet only a provocative of mirth; and even Coleridge profoundly as he discoursed on the various springs and forms of human thought, regarded it as a clever sham, used for the purpose of concealing a real design. Until within a few years, Hamlet's derangement was almost universally regarded as feigned. Aside from his own intimation after meeting the ghost it is difficult to conceive of any foundation for this opinion. And yet it would seem as if the strongest and clearest reasons alone could warrant the idea that the most faithful delineation of a disordered mind ever made by man represents a deceptive counterfeit, not a truth and a reality. Without a single adequate reason, this notion has been handed down, like an heirloom from one critic to another, unquestioned and apparently unquestionable in the very face of the fact that Hamlet's insanity, which is supposed to be assumed for the purpose of concealing his plans, immediately excites the apprehensions of the king and leads to his own banishment from the state. A most perverse ingenuity has been exercised in endeavoring to reconcile some passages in Hamlet's conduct with the admitted qualities of his character and the ordinary springs of human action. Hamlet's disorder is often manifested under circumstances that forbid the idea of simulation.

Because of an inability to discern the essential distinctions between real and feigned insanity we believe many critics have been loath to abandon the old views of Hamlet's mental status. To extenuate their position they say it was not Shakespeare's endeavor to represent a case of genuine disease when confronted with some passage that could hardly be feigned and assert that it only proves the poet's great power of imitation. Although Shakespeare's intellect was an overmastering power which still recoils from its encumbering clay, critics attribute quite too much to him because there are many traits of the real disease that defy the utmost efforts of mimicry to simulate. The perversion of the moral affections, the sincere and solemn earnestness with which the patient announces and asserts his delusions, that particular train of thoughts, so difficult to describe, but so characteristic of insanity —all these are traits as far beyond the power of the simulator to imitate, as the quick pulse, furred tongue and dry skin of its more recent and acute forms. Then, too, critics overlook the very purpose of feigning. It is to deceive, to hoodwink the spectator into the belief of something that has no real existence. Hence only such traits of the disease are exhibited which would make the strongest and best impression and all those most carefully avoided that are least often noticed and those that would pass in the world

for something else, such as eccentricity, bad humor or low spirits. The purposes of the simulator require that the traits he assumes should be obvious immediately and so he forces them on the attention with no regard to pathological propriety or to any principle of subordination. That Shakespeare bore this distinction in mind in the present instance, is obvious in every scene of the play. All can recognize insanity in one who raves or utters gross delusions, but few can see it in Hamlet's scorching rebuke of his mother, in his harsh treatment of Ophelia, in his murder of Polonius, in his famous soliloquy on death, or in his welcoming address to his old schoolfellows. In much of this conduct and discourse most persons would see nothing more than an extreme acerbity of temper, an early experience of the hollowness of life and at worst perhaps, a fit of depression.

The theory of insanity will explain very satisfactorily all difficulties which have received such various solutions. The character and conduct of Hamlet are in the strictest accordance with the principles of human nature. Hamlet was no automaton but a living human soul and as in the case of most distinguished men, his character is not so easily read. The integrity of every train of thought is marred by some intrusion of disease—the smooth deep current of his feelings is turned into eddies and whirlpools under its influence and his solemn undertakings conducted to an abortive issue. His clearest perceptions, his holiest purposes, his strongest determinations, are followed by the doubts, apprehensions and scruples that torment and distract the disordered mind. While his whole soul is occupied with the idea of revenge, he is ever finding excuses for postponing the moment of execution, constantly turning from his purpose by the merest whim and justifying his conduct by reasons too flimsy to satisfy any but a disordered intellect. His very remark "to put an antic disposition on" on which the theory of Hamlet's insanity being feigned is mainly founded, indicates at most but an indefinite half-formed resolve to accomplish a purpose by simulating a disease that was really overshadowing his spirit in all its fearful reality. The final event, the crowning catastrophe of the piece most aptly finishes the story of Hamlet's irresolution, his vacillation, his forereaching plans, his inadequate performance. The nearest object of his heart—the revenge of his father's wrong—is at last accomplished, but by means of a contrivance he had no part in affecting. Such is the nature of insanity—to talk but not to act, to resolve but never to execute; to support the soundest projects for action by the most imperfect performances.

Hamlet's interview with Ophelia, as described by herself, exhibits in it some of those exquisite touches that always distinguishes the genuine from the false. Here Shakespeare is poetically, dramatically and pathologically true to nature and science. In this interview the indications of derangement are confined to looks, gesture and demeanor. Not a word escapes his lips but a language more expressive than that of the voice betrays the violence of his emotions. We see him in a sudden paroxysm of his disorder that renders him heedless of his personal appearance, obeying the instincts of his affections, and making his accustomed way to her whose love had shed a radiance over his opening prospects. In a tumult of strange and contending emotions he has lost the power of speech, for he had already lost the power to think and feel like himself. He can only gaze into her face as if to penetrate into the mystery that surrounds him and then heaves a convulsive sigh that threatens to end his being. Such is madness and such scenes as this and others that subsequently occurred between Hamlet and Ophelia have happened a thousand times in real life, where the insane lover thrusts himself into the presence of his mistress with pallid face, piteous look, knees knocking each other, hatless head and downgyved stockings, only to frighten and distress her by the painful exhibition of clouded intellect and disordered affections. All this interview may be said to be entirely compatible with the theory of simulation, but when we behold Hamlet and Ophelia in their next interview so remarkable for his outrageous cruelty and harshness of conduct and language we are as little inclined to believe all this to be a well acted sham as we would the wail of a newborn infant or the hectic flush of a consumptive. Can you see in this pretended madness as Dr. Johnson did, a cause for much mirth? No, you do not laugh nor even smile to see so fair a lady as Ophelia treated in so harsh and unfeeling a way, even for the purpose of simulation. Commentators who hold that Hamlet feigned madness never explain this passage—indeed it cannot be explained by their theories. The most natural theory and the only one that can throw any light on it and which makes it so plain after being once suggested reveals it to all that Hamlet is insane. His conduct in this interview on the theory of insanity is perfectly in accord with the symptoms of this disease. Insanity brings a change over the warmest affections of the heart, whereby the golden chains wrought by love and kindness are utterly dissolved and the forsaken and desolate spirit, though it continues among men, is no longer of them.

The Darkened Mind

The fire is burning clear and blithely,
Pleasantly whistles the winter wind;
We are about thee, thy friends and kindred,
On us all flickers the firelight kind;
There thou sittest in thy wonted corner
Lone and awful in thy darkened mind.

There thou sittest; now and then thou moanest;
Thou dost talk with what we cannot see,
Lookest at us with an eye so doubtful,
It doth put us very far from thee;
There thou sittest; we would fain be nigh thee,
But we know that it can never be.

We can touch thee, still we are no nearer;
Gather round thee, still thou are alone;
The wide chasm of reason is between us;
Thou confutest kindness with a moan;
We can speak to thee, and thou canst answer,
Like two prisoners through a wall of stone.
Hardest heart would call it very awful
When thou look'st at us and seëst—O what?
If we move away, thou sittest gazing
With those vague eyes at the selfsame spot,
And thou mutterest, thy hands thou wringest,
Seeing something—us thou seëst not.

Strange it is that in this open brightness,
Thou shouldst sit in such a narrow cell;
Strange it is that thou shouldst be so lonesome
Where those are who love thee all so well;
Not so much of thee is left among us
As the hum outliving the hushed bell.

—Lowell.

In no instance are these views so strongly confirmed as in this remarkable scene. Notice the rapid transition so characteristic of the insane. First calmness and courtesy followed by torrents of abuse, denial of affection, extravagance and perversity. Then the most tender emotions as she flits before him. And when she returns the gifts she had received from him with a mere intimation that he had ceased to love her, quick as a flash jealousy, the arch-demon of hell with his loyal cohorts, mistrust and anger run riot through the avenues of his brain. Words of gall and bitterness are poured out upon the fair Ophelia whom he loved with more than the love of forty thousand brothers. Feelings of doubt, indifference, hatred, contempt and loathing are thrown like a thousand poisoned arrows into her tender breast; and the tenderness of a lover, the courtesy of a gentleman have been transformed into the bitterest of bitter hatred, perversity and ill treatment. Is there anything laughable in this laceration of feelings and outraging of dignity? Or anything warrantable as a clever sham to hide a real design? How unnatural and unwarrantable it would have been in Hamlet had he been acting a part, is obvious enough from the disposition of critics to regard it as a fault in the author. The fury and extravagance of mania, the moodiness of melancholy he might sucesssfully mimic; but to do violence to his affections, to desecrate and trample upon the idol that he had enshrined in his heart of hearts—this was beyond the power of mimicry.

Shakespeare had closely observed and studied such aberrations from the normal course of the affections and saw in them that kind of poetical interest which master-spirits like his are apt to discern in the highest truths of philosophy. His delineations of insanity unfold many a deep truth in mental pathology. Maudsley says of him: "I am apt to think that we may learn more of the real causation of insanity by the study of a Tragedy like Lear than from all that has yet been written thereupon in the guise of science." Ray says "Few men, I apprehend, are so familiar with those diversities of mental character, that are in any degree, the result of disease, as not to find the sphere of their ideas on this subject somewhat enlarged by the careful study of Shakespeare."

. . . . .

(Presented 1890, Published 1934)

What Is Dementia Praecox?

KARL A. MENNINGER, Topeka

As the mystery of ancient medicine was fever, which we now know to be chiefly the product of infection, so the mystery of modern medicine is, I suppose, cancer. Correspondingly as the mystery of early psychiatry was epilepsy or convulsions, which we now know to be chiefly due to brain cortex injury or irritation, so the mystery of modern psychiatry is dementia praecox.

Prevalence

Dementia praecox is a disease that deserves the attention of every medical man. There are at the present time in the United States 125,000 in the custody of state hospitals, and it is safe to say that there is an equal number outside the walls of the state institutions. This is a far greater number of cases without doubt than the combined total number of cases of brain tumors, spinal cord tumors, pelvic cellulitis, placenta previa, inverted uterus, and other similar topics for today's consideration of this society.

In the state of Kansas there are approximately 1,600 cases of this disease within hospital walls and many unrecognized cases outside.

Here let me quote from an open letter from Bayard Holmes, a Chicago surgeon, who, having lost his son to this disease, dedicates the rest of his life to the study of it, and in a ringing appeal for the promotion of research writes:

"In order to audit this plague of civilization, add to the inconceivable personal suffering of these soul poisoned youths, the miseries of an equal number of confounded and woebegone families from which they have been snatched by this horrid and revolting possession, . . . follow to their homes the stricken, astounded and worse than heart-broken families, and then alone can this social blight and catastrophe be dimly recognized.

". . . We have been stunned by grief and woe. We have been silenced by the stigma of disgrace which an unknown etiology of these diseases has permitted the keepers of the insane to heap upon us."

In spite of this tremendous prevalence and in spite of this terrible seriousness of the disease, its very name is unfamiliar to many physicians and its vaguest outlines to an even greater number. In this brief paper I shall endeavor to present in a simple way the outstanding facts about the disease. There are, *first*, certain clinical features; *second*, prognostic principles; *third*, social and medical implications.

Nature

For working purposes we must conceive of the mind as being made up of perception, ideation, emotion and volition—we perceive, we think, we feel, we act. Each of these functions of the mind may be distorted, may be split in any one of several ways. We are familiar with the hyperactive emotion of the melancholiac, with the underactive and underdeveloped intelligence of the feebleminded, with the feebly developed will of the neurasthenic. These abnormalities may be classified as being those of the type of exaggeration, those of diminution, those of distortion, and those of actual fracture.

Dementia praecox represents the fractured or broken mind. From this fact comes the name by which it is best known technically—schizophrenia; from "schizo," meaning split, and "phrenia," meaning mind. The split, distorted, broken mind is the mind of dementia praecox.

First of all the *perceptive* powers are distorted. This results in hallucinations—that is they perceive things which do not exist. I will cite briefly a few typical cases to illustrate this.

Case 1. Arthur (10987) is 23 years old. All of his family were normal but for three years he had been peculiar. He talked of hearing people whispering about him and making significant sounds which referred to him; he thought people said that he was a nigger, he heard bells ringing, he thought that his horse lost weight because it had been doped, he thought he saw spies watching him.

Case 2. Grace is the daughter of an intelligent and prominent man in this state. There were various evidences of dementia praecox but for the moment the most interesting fact is that she seemed quite normal except that she would constantly request that Arabella, the angle who came each night to her room and sat in the corner and made a noise which disturbed her, be taken away.

Hallucinations occur in nearly every case of dementia praecox. There are many other mental diseases in which hallucinations are prominent and so a diagnosis cannot be made from this alone. They are as a rule, however, a bad sign.

After perception we think of intellect. The distortion of intellect is shown as delusions and the splitting of intellect as incoherence. There are other forms of pathology too technical to dilate upon here. But these may be well represented in the case of Edmund.

Case 3. (11045). Edmund was 18. He was considered well until one week he refused to get up in the morning to go to work but lay in the bed reading the Bible. He announced that he was the Holy Ghost and therefore didn't have to work. He said he would be fed anywhere he went. He said his brother was persecuting him, had beaten him. He said a peculiar man sat by him and ate oranges to tease him. He said he was a common human being on whom God had forced the Holy Ghost power. This power was forced on him so as to reveal the truth to the people. "North is now south and east is now west, the world having been changed in February." He said a voice told him to go straight ahead. "The house dog seemed frightened. The house cat was between him and the dog. The former was spitting and showing fight." He knows it was God's voice said these words to him and has the following to say which he thinks is quite plain. The dog represented the other man, the cat the other woman, and himself the third man in the modern triangle. The dog being frightened meant he, the patient, was going to be the winner. The girl, or the woman, in this case is from a family with thirteen children. The number "13" is explained as follows: There are thirteen tribes of Judea in the Bible, thirteen colonies in the United States, thirteen is an unlucky number. There are also seven churches mentioned in Revelation, and there are seven children in his parent's family. Here he just gives up trying to explain anything further regarding the numbers but says there is some connection regarding these numbers etc., which a preacher by name of Scheding could explain.

Broken or split feeling results in the patient's believing one way and feeling another way. Thus patients often say they are about to be burned at the stake but they smile or ask for a cigarette in the next breath. I once had a patient who would fall on his knees and say in a most piteous voice "For God's sake, don't let them cut me up this afternoon; isn't it almost time for supper?" Emotional splitting is usually shown by a general apathy. The following case illustrates it very well.

Case 4. John (11037) is the son of a prominent Kansas physician. He is 30 years old. For a long time he has been queer, bashful, retiring, sensitive, very serious, not interested in other people, male or female. (This is characteristic of dementia praecox.)

He began to have some delusions, such as have been previously discussed, that he was associated with the high prelates of the Catholic church. He began to make notes from books which were so disconnected that no one could understand them. He wrote long letters which were meaningless and silly. As time progressed he beame more and more stupid and silly in his talk. For example he said "I am a federal person. This makes me swear and abuse. I am a federal person and I would not commit the sin of fornication." These things he would say to himself in a low voice sitting in a chair, his eyes cast down, his head hung, his hands rolling over his knees. He would often laugh quietly to himself or move his lips, wrinkle his forehead, adjust his coat, stare without winking for a long time, tap his mouth in a peculiar way, etc. He seemed to be absolutely indifferent to every thing that was said to him although he would answer and sometimes do so quite intelligently. It is important to remember that all these symptoms may occur without any loss of memory. This boy's memory was excellent, and he could repeat considerable poetry and was by no means ignorant of current events, classical literature and other matters.

The type of dementia praecox characterized by emotional lack is known as *hebephrenia.*

Last of all we come to the destruction of *volition* which shows itself in misconduct of the peculiar erratic, impulsive, contrary, and resistive forms so familiar to the psychiatrist and so unfamiliar to everyone else. It is the conduct of the mentally sick person which determines whether or not they should be committed to a state institution and the conduct of dementia praecox is usually such that commitment is necessary. This may be of almost any sort of thing. It may be homicide, suicide and other criminal offense or it may be the standing or lying in one physical position for days and weeks and months and years. One patient whom we thought was nearly well and who showed very few signs of the disease last week suddenly seized a hammer and applied it to the face of an unoffending friend without provocation.

To show the extremes to which these cases go I will cite the case of Minnie (Case 5) (10577). Her disease began with delusions that she had caused the influenza and that her children were burning up. She seized a knife and said that Jesus told her to cut her baby's throat. She sat down on a hot stove and said that she had to burn up, and almost did.

For a time she was very disturbed and noisy then for a time motionless for long periods. At the present time she presents a most horrible spectacle. She crouches like a buzzard, her head bent over her knees, saliva drooling down her face, her gown soiled, her face mask like. She has to be fed by tube because everything that we attempt to do for her she resists, fighting with tooth and nail at times. It is these cases in the most severe stages which form the typical picture of insanity in the mind of the public. In such extreme forms they are rare but less severe types are very common.

It is an important fact to emphasize that the so-called violent patients are not numerous. At the Topeka State Hospital, which by the way is an insti-

tution of which Kansas should be proud because it ranks high among the institutions of the West—thanks in large part to the excellent direction of the Superintendent, Dr. M. L. Perry—there are at the present time about 1,500 patients and of these certainly less than 50 could be regarded as violent in the lay sense.

Cases characterized by volitional disorder are known as *catatonic* type of dementia praecox.

Prognosis. If you will look in your text books you will find the prognosis given as practically hopeless. This, indeed, is the general viewpoint. With it I certainly do not agree. I have seen a good many patients upon whom a diagnosis of dementia praecox was absolutely positive who became as far as we could see practically or perfectly well. There have been a considerable number of such at the Topeka State Hospital where I have seen them with Dr. Perry and I have also seen them in my private practice as well as in other hospitals.

The truth of the matter is that there are probably three types of prognosis, but not corresponding to three types of dementia praecox illustrated above. There is a type of dementia praecox which progresses steadily and inevitably to severe dementia and which must be considered utterly hopeless in our present knowledge. This I call type one and it corresponds to the conventional picture first described by Kraepelin. There is a second type in which there are attacks of mental disease which certainly seems to be dementia praecox, but from which the patients recovers completely or almost completely only to have a subsequent or several subsequent attacks. I do not know what the ultimate outcome of these cases is. There is a third group mentioned above made up of patients who have typical dementia praecox who get well and stay well.

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Implications

1. First of all I would emphasize the fact that these cases of incipient dementia praecox are constantly occurring unrecognized all about us. Unlike the feebleminded multitudes which clog our schools and industries these people do all right up to a certain point and then go to the bad, often with much resulting damage.

2. The practical thing to do in these cases is that the diagnosis once made, the patient should be committed. There are very few exceptions to this rule. I have the less hesitation to make this statement because of the remarkable good provision in this state for the insane, like so many things at home I think so many of us do not appreciate, but from contact with numerous eastern and western institutions I can assure you that Kansas should be proud of what she has.

3. The third practical point I want to make is that we should have more facilities and opportunities for and interest in the subjects of research in mental diseases particularly in the matter of dementia praecox. We know little about the nature of the disease but the little that we do know is in every way encouraging toward the ultimate solution of the problem. Hence it is fairly safe to predict that some day we will be able to prevent many and cure many cases of what now must remain hopeless mental disease. (1921)

Professional Cards

Considerable consideration has been given to the pros and cons of continuing the section of professional cards in the JOURNAL. The main argument in their favor has been that a certain amount of income is received from their source. The rebuttal is that it is not democratic, since all cannot use the space, and that it is an additional tax on members who are already supporting the paper through their dues. It has finally been decided to discontinue this advertising section with the January issue, at which time refunds will be made on unexpired contracts. In the meantime contracts expiring will not be renewed. It is hoped that this change will meet with the approval of the Society. (1934)

The Nurse Problem

In the early nineties there were very few graduate nurses in this state. Those that were here found only occasional demand for their services for which they charged fifteen dollars per week.

Now there are a great many graduate nurses in the state, they are seldom idle if they care to work and their regular charge is $42.00 per week.

In several states the medical profession is seriously agitated over what is called the growing aristocracy of the trained nurse. Conferences are held, committees are appointed and the demand continually made that something be done about it.

In those early days, there were few trained nurses, there were very few training schools, and, in fact, there were comparatively few hospitals in this part of the country, at least.

There were plenty of good old souls among the women who liked to nurse sick people, some of them for pay and some of them for the pleasure of it. They could do many things for the patients but were not much help to the doctors. Their instincts and their experience were their dependence and they could not be taught to do things for which they could not understand the reasons.

A little experience with graduates from a training school soon convinced the doctors that in these trained women he not only had a nurse but an assistant. One who not only knew how to do all that the untrained nurses could do for the patient, and could prepare proper kinds of diet, but could take the pulse, temperature and respiration, could catherize the patient or give a hypodermic injection if required and do a great many other things that could not be trusted to the practical nurse or the neighborly nurse. It was very natural that, since she relieved him of some of his responsibility and a great deal of the detail, the doctor should more and more frequently demand that a trained nurse be put on his cases.

The good old soul who was so kind, and patient and sympathetic, soon had no place to go and finally dropped out of the picture. The doctors were then not sorry to see her exit, for good as she was, she was nevertheless trying to their temper. She did not hesitate to advise him about the case, tell him what a great remedy a cranberry poultice was in erysipelas, or how old Dr. Brown, long since passed away, had treated cases just like this one.

The doctors found in the trained nurse a very helpful assistant and they wanted to make them more helpful. They wanted to use them as surgical assistants and as office assistants, technicians, etc. And, since the doctors practically controlled the training schools it was natural that the curriculum should be expanded and advanced.

The doctors appreciated the assistance given them by these trained nurses. They praised them highly to themselves and to the people employing them. After a favorable issue in a doubtful case they would sometimes tell the patient and his friends that all the credit was due to the splendid care given by the trained nurse. It was not uncommon for doctors to say that all a typhoid fever case needed was a good trained nurse on the job. They finally came to believe it and there are few of them that hesitate to criticize the doctor who fails to follow their conception of the proper methods for the treatment of such cases.

If the nurses of today are overtrained the medical profession is to blame. A casual review of the very many textbooks that have been prepared for use in training schools will show that most of them have been prepared by doctors who belong to the teaching staff of some training school, that these textbooks indicate what the author thinks the nurse should know about that particular subject, and that most of them have the idea that nurses in training should have practically the same course of study as the medical student. In some of the training schools the whole field of medicine is covered, the pupils are given complete courses of lectures in anatomy, physiology, chemistry, pharmacology, bacteriology, pathology, symptomatology, obstetrics, gynecology, surgery, practice of medicine and all the specialties. All this instruction is wasted on many of them—many of them that become very excellent nurses but not quite as good assistants to the doctors.

It is doubtful if many of us would feel satisfied now with the old time nurses, in fact, one may be quite sure that it is not the overtraining that is the most objectionable feature of the present situation but rather the estimate the trained nurse has put upon the value of her services.

A good deal of stress is put on the expenditure of time and money in securing a medical degree and one frequently hears it said that the average earnings of a practitioner do not justify so large an investment. The medical student puts in four years of nine months each in his college work. The nurse puts in three years of twelve months each in her hospital training. The medical student pays a tuition and pays for his board. The student nurse pays no tuition but works for her board and when she has finished will not usually be able to work continuously if the opportunity offers. If one compares the scale of wages adopted by the nurses associations with the scale demanded by skilled

labor unions it must be admitted that the nurse is not overpaid.

The trouble, however, lies in the fact that while the trained nurses are not overpaid the majority of the people who require the services of a nurse are unable to pay the wages now demanded.

The problem is to supply the people with efficient services at a wage they can pay and the solution of the problem lies with the hospitals and training schools. No one cares to consider a return to the old time nurse, but a distinction might be made between a trained nurse and a medical assistant.

If an intelligent, fairly well educated girl cannot be taught enough in one year in a good hospital to properly care for a sick patient another two years won't add much to her ability in that direction. She probably won't know very much about medicine, but she will be able to do all that it is necessary for her to do as a nurse. There is no reason why the training schools should not arrange to give the didactic course in principles and practices of nursing during the first year and teach the first year classes by demonstration and experience how to nurse the sick; and at the end of the year give these students a certificate of proficiency.

There will be a sufficient number of pupils desiring to take a complete course to supply all the demand for the completely trained graduate nurses. A nurse that has had a year of thorough hospital training would fill all the requirements of ordinary cases. Where the exigencies of the case demand the services of one acquainted with the symptomatology and course of a disease, one competent to meet such emergencies as are likely to arise, the graduate nurse must be employed; and there will always be sufficient demand for them to justify the continuation of the complete training school course.

From reports it seems that the Illinois State Association of nurses has put into effect a policy under which its members are refusing to accept twenty-four hour duty as private nurses in public hospitals and the scale of wages there is fifty dollars a week. If a hospital case requires a special nurse at all, it requires twenty-four hours service. That means that in Illinois a hospital patient requiring a special nurse, must employ two, at fifty dollars a week each, and if as in this state, the patient must also pay for their board, that is at least ten dollars a week more—a total of $120.00 for nursing.

There are only two conditions that justify the employment of graduate nurses for special duty in hospitals that conduct a training school. One is a scarcity of student nurses, but an apparent scarcity of students is sometimes due to the fact that most of their time is consumed in the class room. This condition can be corrected by using for practical instruction half, possibly two-thirds, of the time consumed in trying to teach them a lot of things they cannot learn and would be of no practical use to them if they did learn. The other condition is the expressed desire on the part of the patient for a graduate nurse. Pupil nurses can be put on special duty and will give efficient service if their work is supervised by a competent head nurse. Putting the pupils on duty as specials gives them training and experience in the kind of service they are expecting to give after they have graduated; and they should have it.

This kind of special nurse could be furnished by the hospitals at twenty-five dollars a week. This would be a welcome addition to the income of most every hospital. A plan of this kind would encourage the people to go to the hospital when they are sick. A great many of them could better afford to go to the hospital and have a student nurse than to stay at home and hire a graduate nurse at the present scale of wages.

One may freely discuss this very serious problem in the care of the sick without in any degree minimizing the importance of, and necessity for, the highly trained nurse, but one does not need a landscape artist to paint a fence. (1927)

Editorial

The Prohibition Question

We in Kansas are not very much interested in the modification of the regulations which have controlled the prescribing of alcoholic liquors by physicians. It is not likely that the physicians in this state will ever have any more liberty in that direction than they have now.

No doubt there are a good many of those practicing medicine here that would favor a modification of the bone dry law that would permit them to use and prescribe alcoholics but there are not very many who would actively support a bill for that purpose. It is very doubtful if a member of the legislature could be found who would be willing to introduce such a bill and very few members willing to vote for it. That doesn't mean that they are all prohibitionists, but that they believe most of the people in Kansas are.

While we are not directly concerned in the probability that the restrictions on the amount of liquor that can be prescribed by physicians will be removed or at least modified, we may be interested in the various attitudes of those who will be affected by the change. There is one group who express alarm at the danger of converting doctors into bootleggers. However, most of us have found that doctors are much like other people. Those who bootleg the liquor they are now permitted to prescribe will just bootleg a little more, but it is hardly likely that any who have heretofore confined their prescriptions to legitimate purposes will be in any way changed by the removal of restrictions.

Another group believes that if alcoholic liquor has any therapeutic value in the treatment of human ailments those who are permitted to prescribe it should be competent to determine for themselves the amount required in each individual case. At least this is in harmony with the general principles of scientific liberty the medical profession has claimed.

If alcoholic liquors have any therapeutic value in the treatment of human afflictions, any restrictions placed upon its use affect the sick people who require it and it is a questionable policy that would make sick people suffer in order to protect a few weak doctors from the temptation to become bootleggers. (1931)

Editorial

The Outlook for Medicine

The general depression has added somewhat to the unrest, the prevailing dissatisfaction with things as they are, in the medical profession. Prophecies as to the future and suggested plans for the present are subjects for numerous dissertations. Some support is readily obtained for most any scheme which offers a possible solution of some of the most pressing problems. While this one and that one and a few others are trying to devise some new and unique plan of procedure by which the inevitable may be prevented or postponed, the steady encroachment of state medicine or its congeners is helplessly and hopelessly accepted as a fact.

Wise men in and out of the profession discuss the high cost of sickness and by various arguments attempt to shift the responsibility from one shoulder to another, because it is upon this theme that arguments for state medicine are builded. It is easy to explain and the evidence justifies the explanation, that the services of physicians and surgeons occasion less than thirty per cent of the total cost of sickness. However, the medical profession cannot thus entirely shift its responsibility for the expense of laboratory tests, roentgenologic examinations and hospitalization. In fact, until the beginning of this agitation about the high cost of medical care, the medical profession had reason to be, and did feel proud of the fact that it was rendering the best possible service to sick people, that it was using every available means for accurate diagnosis and was assuring them of better care at the hospital than was possible in the home. If during the years of prosperity the people came to appreciate these things, in fact came to demand them with a little more of this or that expensive type of service added, it was because they believed, as they still do, that their sick and injured should have the best care possible, not because the attending physicians always prescribed it.

The people can get just as cheap medical care for their sick as they ever could. They can keep them at home, have them nursed by relatives and friends and in the majority of cases can depend on the bedside diagnosis of their physician. They can also heat one room in the house with a wood or coal stove and leave

the other rooms cold; they can heat water in the teakettle for an occasional bath in the washtub; they can go back to the horse and buggy or walk; they can save a lot of money by fattening a few hogs in the back yard and butchering them for the winter meat. Why pick on the care of the sick ones for retrenchment?

A program of retrenchment involving the modern comforts of life would not appeal to many people, nor was this agitation about the cost of medical care initiated by the people who were getting the service. They were getting what they wanted and what they paid for, when and if it was convenient, and they still do.

We are all paying too much for the comforts of modern life, frequently called luxuries. We pay too much rent, too much to keep the automobile in running order, too much in taxes for which we apparently receive little or nothing in return; too much for building highways that are never completed; too much for everything when the income fails to meet the demands on it. But there are no large committees appointed and no great funds subscribed or donated to find out what becomes of the money collected for highway construction. No committees have been appointed or large sums of money appropriated to make a survey to determine the average cost per family for automobiles and their maintenance, and yet this item is far in excess of the cost of medical care.

All of these things are already commercialized and occupy their proper place in the world of magnificent finance.

The care of the sick is practically the only important necessity that is not controlled by some sort of organized monopoly. Its commercial possibilities are enormous and the only thing standing in the way of their realization is a lack of information which will soon be available. One's imagination must be severely taxed to see any altruistic or philanthropic motives in this much discussed and much advertised and very expensive survey of the cost of medical care.

The key stone in any insurance structure for the care of sick people is of course cheap and efficient medical service. There is nothing in the history of the medical profession to indicate that financial reward has ever been an important consideration in the service they have rendered to those requiring it.

The history of so-called industrial medicine shows plainly that medical service can be purchased at wholesale at prices that permit it to be retailed to the people at a mere fraction of the prices they would have to pay independent physicians.

The history of sickness insurance in Europe proves that whatever concessions are made in the cost for the care of the sick and injured, it is always the medical profession that makes them.

Of the many explanations as to why the medical profession should bear this burden there are but two that deserve consideration: The medical profession is willing to accept the burden, and it is not in position to prevent its imposition anyway.

Organized medicine really does not exist. Our local and state medical societies, which were founded and are maintained as scientific and educational bodies, have been federated into a great national association, which was also founded and is maintained as an educational and scientific body. It is a great association and has accomplished the almost impossible in the advancement of scientific medicine. But efforts to initiate any activity for the economic welfare of the profession have failed and no doubt will continue to fail. It is doubtful if an organization founded for educational and scientific purposes should, even if it could, attempt to adapt itself to the purposes of a trades union.

It has been but a few years since skilled laborers of all kinds were at the mercy of the corporations that employed them. Long hours and wages that were barely sufficient to sustain them was the rule. The trades unions have not only succeeded in enforcing their demands for shorter hours and better wages, but they have been able to maintain both the working hours and the wage scale in spite of the general depression and unemployment.

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(1931)

The Crippled Children's Law of Kansas

The last legislature enacted a law for the care of the indigent crippled children of the state which should appeal to every physician in the state. It affords the medical profession an unusual opportunity, and the responsibility for its success will depend largely on the kind of support given it by the rank and file of the physicians of the state. The average doctor may be uninterested in it or may regard it solely as a means of furthering his own practice and thus rapidly bring the law into disrepute, or he may, and undoubtedly will, submerge all self interest and pave the way for providing every physically handicapped indigent child every chance to become an independent, self-respecting member of society.

The provisions of the law are unusually thorough and seem to provide for every contingency that may arise in this problem. It has a remarkably broad interpretation of the meaning of the crippled child, embracing all persons under twenty-one who have a physical defect or disease that can be improved or removed by appropriate medical or surgical treatment. It provides the finances to defray the expense of such treatment, each county being assessed one-tenth mill for every taxable dollar to comprise a separate fund to be used only for the care of crippled children of that county. It includes compensation to the doctor as well as to the hospital. It provides for a commissioner to carry out the provisions of the law and to see that the afflicted child gets into the hands of none but competent specialists and in only those institutions that have fully adequate facilities to give the best service. It also provides safeguards so that only deserving indigent children may reap the benefits of this law. Furthermore, it opens the way for the care of such patients in various sections of the state as soon as adequate facilities and competent personnel become available.

While the law has supplied the governmental machinery for the care of the crippled child, every physician knows that much has to be done before its full benefits can be secured. It is estimated that over 5,000 children will become eligible for this treatment. Yet there is no well organized children's hospital in the entire state that can provide the variety of services such as can be secured in some of our neighboring states. There is at the hospital of the state medical school a children's ward with a maximum capacity of fifty patients and a similar ward in only one other hospital in the state. There should be a well equipped, specially designed children's hospital with at least three times as many beds, including a brace shop, a complete physiotherapy unit, a department of occupational therapy and a special school for the education of patients who may be kept months from school. Only with such supplementary departments and equipment can the hospital be thoroughly efficient, but this is necessarily expensive and can be erected and managed most economically where an organization of well qualified specialists already exists, such as in the medical schools of the state universities. The states of Oklahoma, Minnesota, Wisconsin, Iowa and Indiana have provided such children's units at their respective medical schools and the medical profession should urge that Kansas do the same with its medical school. Failure of the law may result from inadequate facilities rather than from the law itself or the attitude of the doctors, and all physicians should be informed of this situation and use their influence to change this lack of preparedness.

The medical profession should not only be awake to the opportunities of this law but should be cognizant of the danger to this law if a few improperly qualified physicians should succeed in using the law to further their own private interests or if the cultists should succeed in their endeavors to be permitted to carry on their unrecognized practices on children under the protection of this law. In other words, two obligations rest upon every physician interested in his community and in the crippled children of the state, first, to give unstinting support to the crippled children's commission in limiting the care of their wards to only those organizations that are adequately equipped and have competent specialists on their staffs and, second, to use every influence to secure more adequate and larger facilities for such care, either at the state medical school or at some other larger center or at several places. (1931)

H. R. Wahl.

Federal Medical Relief

In accordance with the Federal Emergency Relief Act of May 12, 1933, the Federal Emergency Relief Administration issued, on June 23, rules and regulations which will provide adequate medical service for persons now indigent and receiving federal relief. Medical relief is available to all persons who are on the federal relief rolls but it is the understanding persons may apply and receive medical relief only, although such persons must prove their need for this type of service. The scope of medical care has also been defined to include: bedside nursing care in connection with medical care, and emergency dental service for such families as are receiving federal relief.

The Federal Relief Administration has made every attempt to preserve the traditional family and family-physician relationship in the authorization of medical care of indigent persons in their homes; consequently, the choice of physician may be designated by such person or persons who are to receive the medical care. The same provision has been made for dental and nursing service. Funds, however, cannot be used for the payment of hospital bills or to provide general institutional care. Such services to the indigent should be made available through local funds.

Authority for medical care is to be issued in writing by the local relief officer on the regular relief order blank. In an emergency, telephone authorization may be made but is to be immediately followed by a written order. Authorization for bed-side nursing care will be made on recommendation by the attending physician.

Provision is also made for the purchase of medicine and medical supplies to be used in the home. Authorization for medicine or medical supplies will be issued in writing and only upon the written request of the physician. Request is made, however, that physicians use a formulary which excludes expensive drugs where possible, but if expensive medication is considered essential by the attending physician it may be authorized after consultation with the local medical advisory committee. Further provision is made that "prescriptions for necessary drugs and medicine shall be restricted to the National Formulary or the United States Pharmacopeia. To avoid excessive expenditures on remedies of unknown or doubtful value, proprietary or patent medicines shall not be authorized."

The Administration in the promulgation of its rules and regulations provides the agreement for medical relief shall be between the state and/or local relief administration and the organized professional group of physicians, nurses and dentists. Requirement is made that a fee schedule be outlined and a flat rate established on a per visit basis for the usual care given acute and chronic illness, for attendance at confinement, and "all special services (medical, nursing or dental) be covered by an agreed reduction from the usual minimum fee schedule for such services with an agreed maximum fee. . . . All fees shall be established on the basis of an appreciable reduction from the prevailing minimum charges for similar services in the state and local communities, with due recognition of the certainty, simplicity and promptness of payment, that authorization from the local relief administration insures."

At the Annual Conference of Secretaries of Constituent State Medical Associations held in Chicago, September 22 and 23, it was learned that a number of states, including New Hampshire, New Jersey, Kentucky and Montana had had this type of service for a varying period of several months, and apparently the arrangement was entirely satisfactory. One state reported that a fee schedule had been adopted whereby the work was done for 15 per cent less than the normal fee. Another stated that although the agreement had been made by the state medical society with the Relief Administration, the medical society had the privilege of withdrawing at any time and also had the right to decide when the emergency ended.

Under the provisions of the rules and regulations, advisory committees of the medical, nursing, dental and pharmaceutical associations are to be organized to confer with state relief officials in the formulation and adoption of adequate programs for medical and dental service and nursing care in the homes. Consequently, a committee will be appointed by the President of the Kansas Medical Society to confer with local relief officials and as soon as a program is formulated immediate notification will be made to the local county medical societies. (1933)

The Brinkley Matter

A proper understanding of the present status of the Brinkley matter will be best arrived at from the calendar of events in connection with it.

The complaint against Brinkley was filed April 29, 1930. The attorneys for Brinkley applied to the Shawnee District Court for an injunction against the Board May 7, 1930. Judge Whitcomb of the Shawnee County District Court denied the injunction May 20, 1930. Appeal was taken to the State Supreme Court June 6, 1930 and its decision sustaining the authority of the board to conduct the hearing was rendered June 13, 1930. An appeal was taken to the United States Supreme Court on June 17, 1930, and this court refused to take up the case.

The hearing by the board was begun on July 15 and continued until July 30, when a recess was taken until September 15, 1930.

On September 15 the members of the board visited the Brinkley Hospital at Milford and witnessed his operations.

The hearing was resumed on September 16 and on September 17 the Board voted to revoke the license of Dr. Brinkley.

Shortly after the order was issued revoking Brinkley's license the Attorney General applied for an injunction to restrain Dr. Brinkley and his staff from practicing. The attorneys for Brinkley filed an application for an injunction in the federal court on October 24, 1930. Briefs in this case were filed on December 10 and on January 28, 1931, Judge Pollock decided that he had jurisdiction in the case and the injunction case would be heard by him.

To anyone who may still be in doubt as to the status of this case one might suggest a perusal of Dickens' Bleak House. (1931)

Editorial

Finis—Brinkley

It is a source of satisfaction of the physicians of Kansas that the Board of Medical Registration and Examination was upheld on all points in its revocation of J. R. Brinkley's license by a recent decision of the federal district court. The Kansas board and Dr. Barney are entitled to the lasting gratitude of the citizens of our state for their courageous action five years ago which resulted in the removal of the Milford menace to one or another of the banks of the Rio Grande. Judge Johnson said:

"Brinkley made the practice of medicine a business, adopting the usual present day methods of propaganda by use of the mail and radio for its development and extension.

"These methods are not only notoriously in conflict with the ethics of the profession, but in my opinion, in conflict with the best interests of the public, and irrespective of the value of the operations performed by him at the hospital for the amelioration of the prostate gland, or the benefits to individuals using prescriptions given them through radio broadcasts, the possibilities of injury to the general public resulting from such methods are so apparent that its mere statement is sufficient."

This decision will strengthen the authority of the Board to protect the public from quacks and charlatans in the future besides giving judicial sanction to such of our medical ethics as are opposed to advertising and promiscuous prescribing. (1935)

How to Get a Basic Science Law

The Kansas Medical Society continues its unrelenting efforts toward the passage of a basic science law. A pamphlet has just been published by the Society entitled "WHY DOES KANSAS NEED A BASIC SCIENCE LAW?" A copy has been sent to each member and a supply of the pamphlets to be widely distributed among the population is in the hands of every county society secretary.

This pamphlet sets forth briefly and concisely what the basic sciences are, what constitutes basic science laws, together with the discussion of the valid and invalid objections to such laws, and why Kansas needs a basic science law. The Committee on Public Policy is to be congratulated upon its work in the preparation of the pamphlet. A great deal of study and careful consideration of the subject has been condensed into a form to be quickly read and there is displayed a fine sense of fairness in its presentation.

Every Kansas doctor should read "WHY DOES KANSAS NEED A BASIC SCIENCE LAW?" This pamphlet is not to be cast into the wastebasket nor allowed to be submerged among accumulated papers on the physician's desk. It is to be read, then given to patients and influential friends to read. It is of the utmost importance that the information contained in the pamphlet be disseminated as widely as possible, among not only physicians, but the general public as well. Kansas physicians must become thoroughly informed as to this activity of their Society in order to use their influence to the fullest extent for the passage of the Basic Science law. The interest of the public must be aroused and widespread understanding of and sympathy for the measure created.

Kansas was the first state in the Union to propose such legislation when, in 1911, Governor W. R. Stubbs appointed Dr. J. A. Milligan and F. Dumont Smith as a commission to work out a method of state control for the practitioners of the various cults. At that time, Kansas had a license act for only the regular medical profession. The bill prepared by Doctor Milligan and F. Dumont Smith was a model for a Basic Science Law, but the legislature, failing to comprehend the importance of such a measure, did not pass it. Since that time, The Kansas Medical Society has never ceased in the effort to secure the passage by the legislature of a Basic Science Law. Nine other states have gone forward to the enactment of such legislation and the experience of those states in the results obtained is most gratifying to the proponents of basic science legislation.

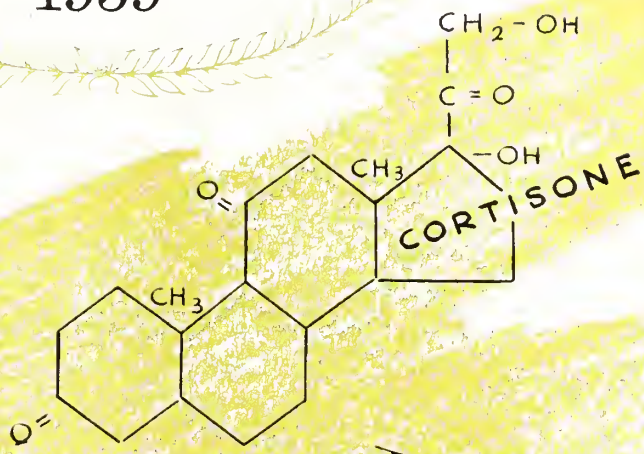
Kansas will have a Basic Science Law as soon as the public is educated to the need of it. The obstruction of interested pressure groups to the progress of science, the misconception of "liberty," and the failure of men of public affairs to recognize the importance of legislation pertaining to the health of the population are responsible for the delay in giving to the citizens of Kansas the protection of a Basic Science Law. The medical profession has long ago acknowledged its responsibility. It remains for each physician to assume a personal responsibility in the campaign to publicize the measure and to use his influence to secure its passage by the legislature. (1937)

Munns Appointed Secretary

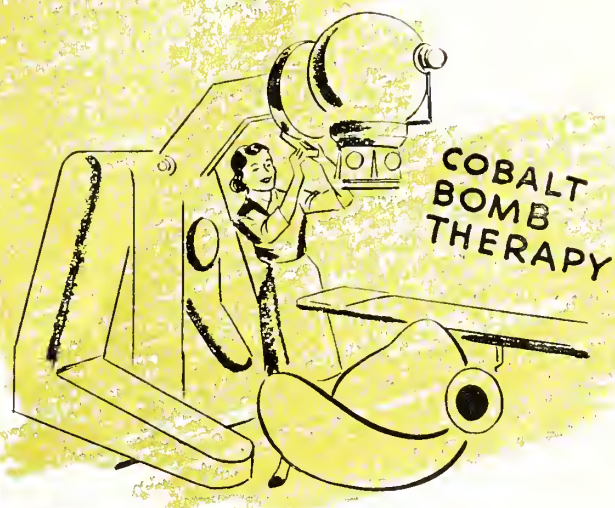
The Executive Secretary Committee appointed at the Wichita meeting has met on several occasions to consider the many applications that were received. Several applicants were requested to meet with the committee in Wichita, on June 24. After interviews with the applicants, the committee named Mr. Clarence Munns as the full-time executive secretary.

Mr. Munns is an attorney; graduate of the University of Kansas, class of 1930. He is a native Kansan, his home originally being in Hoisington. For the past four years he has been associated with the Phillips Petroleum Company in legal and credit activities with headquarters in Bartlesville, Oklahoma, and St. Louis, Missouri. (1934)

1941
"The Doctor Seeks New Tools"
1959



RADIOACTIVE ISOTOPES I^{131} Au^{198} P^{32}



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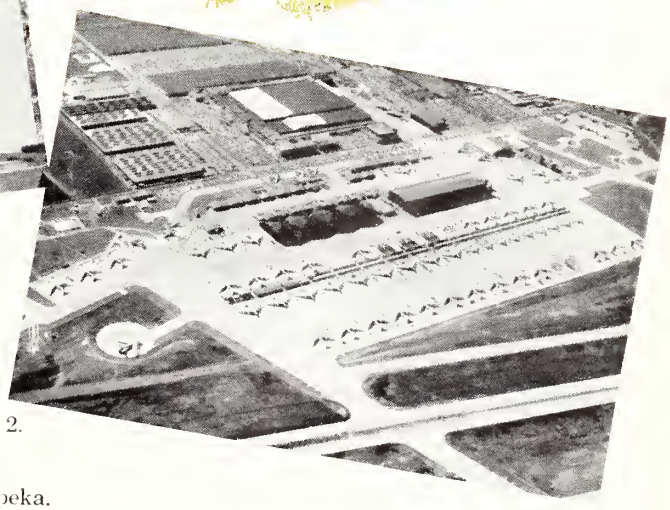

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1. Kansas Blue Cross-Blue Shield building, Topeka.
2. Boeing Airplane Company, Wichita.

Introduction

Kansas, along with the rest of the country, is emerging from the depression of the 30's with its bank holidays and increased welfare rolls. Railroads and street railway systems are feeling the effects of growing bus traffic and private automobile travel. Adolf Hitler and his Nazi cohorts have all of Europe and a good share of the world trembling, and some Japanese leaders are thinking about acquiring American possessions in the Pacific. "F. D. R." has given his Fireside Chats for eight years, and has shattered precedent again by accepting a third nomination and election as President of the United States.

Diabetes is no longer the same threat since the discovery of insulin. Pernicious anemia has succumbed to liver therapy after being a "fatal" disease for so long. Measures to detect tuberculosis in an early stage have decreased its toll. The beginnings of chemotherapy have appeared with the sulfonamides, initiating a change which will revolutionize treatment of infections and pave the way for antibiotics to follow.

Bombs will soon fall on Pearl Harbor, then follows the tragedy of World War II, the greatest war in the world's history. We are on the brink of a period of phenomenal growth of various voluntary plans for pre-payment of hospital and physician expenses. There will also be repeated attempts to foist compulsory health insurance on the American people. New antibiotics, new chemical research, and radiophysics will furnish the physician with the new tools he constantly seeks.

Group Hospitalization

The following is the group hospitalization enabling act sponsored by the Kansas Hospital Association and passed by the Legislature in its recent session:

Section 1. This act shall be known as the mutual nonprofit hospital service corporation act.

Sec. 2. Mutual nonprofit corporations may be organized for the purpose of entering into contracts with participating hospitals to provide hospital service for their subscribers. The affairs of any such nonprofit hospital service corporations organized under this act shall be managed by a board of directors of not less than fifteen members composed of:

(1) Administrators or trustees of participating hospitals;

(2) Licensed physicians exclusive of group (1), and

(3) Members of the public exclusive of groups (1) and (2), in equal proportion. The directors shall take oath of office as in other corporations and duplicates of such subscribed oaths shall be forwarded at the time of election to the commissioner of insurance for filing in his office. The by-laws shall specify the number of directors necessary to constitute a quorum, which shall not be less than ten members.

Sec. 3. Corporations organized under the provisions of this act are empowered and authorized to enter into contracts to provide hospital service for its subscribers with such hospitals, including municipal, county, proprietary and charitable hospitals, as may be approved by the State Board of Health or its successors in office. The governing bodies of municipal or county hospitals are hereby authorized and empowered to contract with mutual nonprofit corporations organized under this act to provide hospital service for the subscribers of said corporation. Such contracts shall constitute direct obligations of the participating hospitals to the subscribers: *Provided*, That nothing in any contract to be made by any such corporations with a participating hospital or subscriber shall have the effect of imposing upon any participating hospital any obligation or liability for any act, omission or default of any other participating hospital or of such corporation.

Sec. 4. The commissioner of insurance shall issue a certificate of authority to such corporation upon compliance with the following conditions: (A) It shall file with the commissioner of insurance a certified copy of its charter, by-laws, and the policy forms and rates it proposes to use. (B) It shall file with the commissioner of insurance contracts with at least twenty participating hospitals having a total of not less than three hundred beds to provide hospital service to the subscribers as required by section 3 of this act. (C) It shall hold bona fide applications for hospital service upon which it shall have collected a minimum of two months' premiums from at least two hundred subscribers, upon which it shall issue policies simultaneously. The total of such premiums shall be held in cash and shall not be disbursed until the policies are in force. Any such corporation shall be in possession of lawful assets over and above all liability in an amount not less than three thousand dollars and shall file with the commissioner of insurance a financial statement certified to by at least two executive officers. Before issuing a certificate of authority the commissioner shall cause an examination to be made of the affairs of the corporation as provided by section 40-208 of the General Statutes of 1935.

Sec. 5. Every policy made by a corporation subject to the provisions of this act shall be for a period not to exceed twelve months, and no policy shall be made providing for the inception of benefits at a date later than one year from the date of the policy.

B. No policy except as provided in subsection E of this section, between any such corporation and a subscriber, shall entitle more than one person to benefits, except that a "family policy" may be issued, at an established rate, granting hospital benefits to a husband and wife, or husband, wife and their child or children not over eighteen years of age, who must be named in the policy.

C. Every policy entered into by any such corporation with any subscriber thereto shall be in writing and a certificate stating the terms and conditions thereof shall be furnished to the subscriber to be kept by him. No such certificate form shall be made, issued or delivered in this state unless it contains the following provisions: (a) A reference to the amount payable to the corporation by the subscriber and the times at which and manner in which such amount is to be paid; (b) a statement of the nature of the benefits to be furnished and the period during which they will be furnished; and if there are any benefits to be excepted, a detailed statement of such exceptions printed as hereinafter specified; (c) a statement of the terms and conditions, if any, upon which the policy may be canceled or otherwise terminated at the option of either party; (d) a statement that the policy includes the endorsements thereon and attached papers, if any, and contains the entire contract; (e) a statement that no statement by the subscriber in his application for a policy shall avoid the policy or be used in any legal proceeding thereunder, unless such application or an exact copy thereof is included in or attached to such policy, and that no agent or representative of such corporation, other than an officer or officers designated therein, is authorized to change

the policy or waive any of its provisions; (f) a statement that if the subscriber defaults in making any payment under the policy, the subsequent acceptance of a payment by the corporation or by one of its duly authorized agents shall reinstate the policy, but with respect to sickness and injury, only to cover such sickness as may be first manifested more than ten days after the date of such acceptance; (g) a statement of the period of grace which will be allowed the subscriber for making any payment due under the policy. Such period shall be not less than ten days; (h) a statement that the subscriber may choose any hospital for hospitalization.

D. In every such policy made, issued or delivered in this state: (a) All printed portions shall be plainly printed; (b) there shall be a brief description of the policy on its first page and on its filing back; (c) the exceptions of the policy shall appear with the same prominence as the benefits to which they apply; and (d) if the policy contains any provision purporting to make any portion of the articles of incorporation or by-laws of the corporation a part of the policy, such portion shall be set forth in full.

E. A hospital service corporation may issue a group policy, provided the group of persons thereby insured conforms to the requirements of section 40-1109 (k) of the General Statutes of 1935, and provided such policy and the individual certificates issued to members of the group shall comply in substance with this section. Any such policy may provide for the adjustment of the rate of premium based upon the experience thereunder at the end of the first year or of any subsequent year of insurance thereunder and such readjustment may be made retroactive only for such policy year.

Sec. 6. The rates charged by any such corporation shall be filed with the insurance department. Premiums shall be payable in cash and no policy issued by such corporation shall provide for any assessment or contingent premium.

Sec. 7. Such corporation shall maintain unearned premium and other reserves upon the same basis as that required of domestic stock insurance companies transacting the same kind of insurance.

Sec. 8. Any director, officer or member of any such corporation, or any other person, may advance to such corporation any sum or sums of money necessary for the purposes of its business or to enable it to comply with any of the requirements of the laws of this state, and such moneys and such interest thereon as may have been agreed upon, not exceeding eight percentum per annum, shall be payable only out of the surplus remaining after providing for all reserves and other liabilities, and shall not otherwise be a liability or claim against the corporation or any of its assets. No commission or promotion expenses shall be paid in connection with the advance of any such money to the corporation, and the amount of such advance shall be reported in each annual statement.

Sec. 9. Such corporations shall be subject to the provisions of this act and to sections 40-214, 40-215, 40-216, 40-218, 40-219, 40-222, 40-223, 40-224, 40-225, 40-226, 40-228, 40-229, 40-230, 40-231, 40-235, 40-236, 40-237, 40-247, 40-248, 40-249, 40-250, 40-251 and 40-254 of the General Statutes of 1935 and section 40-227 of the General Statutes Supplement of 1939, except as the context otherwise requires, and shall not be subject to any other provisions of the insurance code except as expressly provided in this act.

Sec. 10. Every corporation organized under the provisions of this act is hereby declared to be a charitable and benevolent corporation.

Sec. 11. (a) No corporation subject to the provision of this act shall during any one year disburse more than ten per cent of the aggregate amount of the payments received from subscribers during that year as expenditures for the soliciting of subscribers, except that during the first year after the issuance of a permit, such corporation may so disburse not more than twenty percentum of such amount and during the second year not more than fifteen percentum. (b) No such corporation shall, during any one year, disburse a sum greater than fifteen percentum of the payments received from subscribers during that year as administrative expenses, except that during the first two years after the issuance of the permit, such corporation may disburse not more than twenty percentum of the payments received from subscribers. The term, "administrative expenses" as used in this section, shall include all expenditures for nonprofessional services and in general, all expenses not directly connected with the furnishing of the benefits specified in this act, but not including expenses referred to in subsection (a) hereof.

Sec. 12. Any such corporation shall pay the commissioner of insurance as a fee for the examination of the charter and other documents and the issuance of a certificate of authority the sum of ten dollars. The annual fee for the filing of the annual statement and the renewal for the certificate of authority shall be ten dollars.

Sec. 13. No provisions of this act or of any policy for hospital service, between a corporation subject to the provisions of this act and a subscriber shall in any way affect the operation of article 5, chapter 44, of the General Statutes of 1935 and amendments thereto constituting the workmen's compensation law.

Sec. 14. This act shall take effect and be in force from and after its publication in the statute book.

The officers of the Kansas Hospital Association are presently making plans for the institution of a statewide program under this act. (1941)

Editorial

National Emergency

For many years it has been customary for the JOURNAL to include in its December issue an editorial of well wishes for a Merry Christmas. Such an editorial in the December, 1941, issue would have only a hollow ring. With the death, destruction, and tragedy which exist in most of the civilized countries of the world and with the trials and tribulations which our own country will undoubtedly experience for an unknown number of future years, it is very clear indeed that this year no one can have the usual spirit of Christmas.

We have no doubt that the United States will win its part of the present war. It has the facilities and its people have the will and ability to accomplish that result. It is equally true, though, that every person in this country will need to contribute all-out assistance in making possible the united effort only through which victory can be accomplished.

A considerable part of this responsibility will fall upon the medical profession. The Army and the Navy will need a vast number of physicians who must be supplied from civilian sources either voluntarily or through selective service methods. There is no question but that this need will be supplied and immediately so. One of the proudest traditions of American medicine is the record that it has always quickly and loyally arisen to the assistance of our country in its hours of need. The procuring of the necessary number of physicians will create a civilian service problem of magnitude. Those who remain at home will serve their country through hours of extra work, through the maintenance of part time offices in unserved communities, and in countless other ways. Likewise, by reason of the methods of modern warfare the profession will find it necessary to become the source of leadership for development of civilian defense and for the care of possible civilian casualties.

First let us fill the ranks of the Army and Navy medical corps and then organize the home front.

Kansas medicine must accept its part of this obligation eagerly and effectively. It will do its part to "Keep 'em flying." (1941)

Editorial

Gramicidin and Penicillin as Chemotherapeutic Agents

Keefer reports clinical studies of gramicidin and his results indicate another chemotherapeutic agent useful for local therapy. Two substances have been separated from bacillus subtilis, the common soil organisms—gramicidin which is bactericidal for all gram negative organisms, and tyrosidin which is effective against both gram positive and negative bacteria.

Both substances are toxic, producing necrosis of the liver and kidneys and hemolysis of red blood cells when administered subcutaneously or intravenously, they are inactive when given by mouth, but are non-toxic when put in closed cavities or used as topical application. Chronic ulcers, mastoiditis and small, chronic empyema cavities, especially those caused by the hemolytic streptococci were successfully treated.

Dawson has produced similar results with penicillin, in infections due to gram positive organisms. Penicillin is derived from cultures of the fungus penicillium, it is non toxic, it is destroyed by acids and therefore cannot be given by the oral route, has produced successful results in cases of staphylococcus sepsis, pneumococcus endocarditis and hemolytic streptococcus septicemia. Streptococcus viridans endocarditis has so far been resistant to penicillin but probably because sufficiently large doses have not been available. Its clinical use is hampered by the small yield. The average daily dosage of 100 to 200 milligrams requires the processing of forty liters of culture broth.

These substances are not at present available for general use but they may represent a new class of chemical agents more important than the sulfonamides. (1942)

The Interrelationships between Medicine and Psychiatry—Fundamentals of Psychiatry I

WILLIAM C. MENNINGER, M.D., Topeka

Psychiatry is the specialized branch of medicine which is concerned with the study, the diagnosis, and the treatment of those illnesses of mankind which are characterized by conspicuous mental symptoms. Such a definition, however, is not sufficiently broad to include "the psychiatric point of view." By the psychiatric point of view we refer to an interest in and understanding of all of the activities and behaviors and interests of the human race. Just as the internist is interested in how the heart functions in health, so is the psychiatrist interested in how the total person functions in health. The practice of psychiatry used to be limited to the groups secluded in stone buildings on the edge of the village known as "insane asylums," but now a psychiatric interest extends into the office of the private physician, into our educational system, into our law courts, into our correctional institutions, and most important of all, into our general hospitals. The psychiatric point of view has become a necessity for every physician and every nurse, if they are to completely understand any sickness in any individual.

Every physician and every nurse is confronted daily with psychiatric problems, problems that require a psychiatric knowledge for their understanding. For example, the very sick individual with pneumonia may develop a delirious reaction which presents a more difficult problem of treatment than his lung condition. In hyperthyroidism one is often perplexed with the problem of restlessness, sleeplessness, and anxiety. The reaction to pain varies with the individual so widely that only with an understanding of his psychological makeup can it be interpreted. The average physician's daily practice includes those persons with functional heart difficulty, the person whose mind centers around some part of his gastrointestinal tract—the dyspeptic, the choleric, the constipated, the flatulent, and a host more. None of these individuals ordinarily come to the psychiatrist, or even need to do so, but they do come to the general physician or to the specialist. As a result of the treatment they receive these individuals either obtain gratification and relief, or start the rounds from doctor to doctor, or even worse, resort to the charlatan. Without a psychiatric point of view on the part of their physicians, these patients almost invariably follow the latter route.

Immediately when one begins to talk about psychiatry he needs a term to describe the individual from the psychiatric viewpoint. When the psychiatrist speaks of John Doe, he refers not merely to his mind or his intelligence or his emotions, but to all of these together, along with his skin, his muscles, his heart, his intestines, and the way they function. It is even more than just the physical structure, this term must embrace all his attributes—his loves and his hates, his play and his work, and his reactions to all those about him. To include all this in one word the psychiatrist uses the term "personality" and by it he means all that anyone has been, all that he is, and all that he is trying to become.

Thus, when a man functions in any way—physically, as in motion; physiologically, as in digestion; psychically, as in thought—it is an expression of his personality. The psychiatric viewpoint encompasses the observation, the correlation, the purpose, and the motive of every expression of any personality. This viewpoint covers far wider horizon than the actual field in which the psychiatrist practices, because it applies to all human beings. His major work is limited to those individuals in whom the psychic expression of the personality has become warped or distorted or perhaps even wrecked. But the psychiatric point of view must permeate all the fields of medicine, and the successful physician or nurse, whether he wishes to or not, must in some degree have a psychiatric viewpoint.

Psychiatry in Relation to the Total Field of Medicine

At the present time the more keen and alert leaders in the fields of medicine and nursing are aware of the necessity for groundwork and orientation in psychiatry. There is an increasing awareness also among the practitioners of medicine of the psychic component in all disease. This interest is still very limited, but it is definite and it is growing. One may understand the present point of view in light of the evolution of medical knowledge.

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Psychiatry in Relation to the Normal

Most of us pride ourselves on being "normal" individuals, not stopping to analyze what we mean by "normal." We recognize that the concept of disease

is based on an understanding of health, and yet when one talks about a "normal" individual either physically or mentally, he talks about a hypothetical individual. In some instances, "normal" means "average"; in some instances, it means efficiency, in some instances, it means majority.

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Psychiatry in Relation to the Healthy Individual

It is essential at the outset in the study of psychiatry to clarify one's conception that all mental disorders are not included in the group which the public calls "insane," and the group referred to as "neurotic"—those unfortunate individuals whose psychological jams express themselves in morbid fears or physical complaints. The same psychological devices which operate in these individuals also operate in a different quantitative degree in those of us who feel and act and appear as healthy individuals.

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Popular Misconceptions Regarding Mental Illness

Not only is it desirable at the outset for the student to understand the psychiatrist's concepts of personality, disease as a total organism reaction, normalcy, and mental health, but it is equally desirable to correct the more common popular misconceptions regarding mental ill health. In part because of historical influences, in part because of lack of adequate means of education, and in part because of the comparatively recent developments in the field of psychiatry, there are a great many misconceptions regarding mental illness among even very intelligent people. Paradoxically, many of these misconceptions are held by members of the medical or nursing profession, the explanation of which lies entirely in the fact that most of us had an inadequate training in the field of psychiatry in medical school or in the hospital. It seems advisable to clarify the more common of these misconceptions.

1. The misconception that mental sickness means that a person is irrational or beyond understanding, and that the sayings and acts of the mentally ill are nonsensical and incomprehensible. . . .

2. The misconception that hospitalized mentally sick people all rave and yell and run about and are violent. . . .

3. The misconception that mental sickness means that a person is dangerous to himself or others. This misconception is something of a popular superstition. Anyone who is "crazy" is supposed to be dangerous. . . .

4. The misconception that mental illness comes suddenly, that "something snaps," or that "one suddenly loses one's mind," and that there is no protection against this onslaught. . . .

5. The misconception that mental illness is a disgrace to be faced resignedly and with fatalism. Perhaps no other misconception is so widespread as the idea that mental illness in some way or other is a disgrace. . . .

6. The misconception that mental illness is incurable and patients are locked up in asylums for the rest of their lives. . . .

7. The misconception that a person is either "sane" or "insane" and that all "insanity" is the same. This statement really includes two misconceptions. "Insanity" is a legal term, rarely used by psychiatrists, and correctly applied only to those individuals who have gone through an examination and a court commitment to a public institution. . . . Many people have the idea that all types of mental illness are similar. . . .

8. The misconception that mental illness runs in strains through families from generation to generation. . . .

9. The misconception that mental illness is caused by emotional shock, injury, physical illness, childbirth, or similar occurrences. . . .

10. The misconception that a "nervous breakdown" is a disease of the nerves. . . . (1942)

The Kenny Treatment—with a Note on Its Use in Kansas Twenty Years Ago

KARL A. MENNINGER, M.D., Topeka

The great success of the "new" Kenny treatment for poliomyelitis has recalled to my mind an episode in Kansas medical history which may be worth recording. The techniques of the Kenny treatment were used in Kansas nearly twenty years ago and reported in this JOURNAL!

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In the JOURNAL OF THE KANSAS MEDICAL SOCIETY for October, 1923 (pages 278 ff.), in conjunction with articles by my father and my brother Will, I outlined a treatment for poliomyelitis which included (along with serum and other medical treatment) an outline for the treatment of the convalescent stage by "protection, muscle training, thermal therapy, and massage." The application of hot packs wrapped in woolen cloths wrung out of boiling hot water, covered with oiled silk and more wool, exactly as prescribed by Miss Kenny, is recorded. We treated numerous patients by this method, and I am happy to say that twenty years later not one of them, to my knowledge, is unable to walk and some of them are completely free from any residual symptoms whatsoever.

The chief credit belongs not to me but to a Swedish masseuse and physiotherapist who was associated with the Menninger Clinic at that time, Ingeborg Lindquist, now Mrs. Swanson, who was trained in the Royal Institute for Physiotherapy of Stockholm, Sweden. She brought this training to America, modifying her procedure somewhat in the light of the muscle training exercises developed by Frenkel of Germany and Miss Wright of Boston, at my suggestion. She came to Topeka and affiliated herself with us in 1921 and applied this treatment under our direction to our patients in Christ's Hospital.

Poliomyelitis has long since ceased to be any considerable part of the work of the neurologist or the psychiatrist but it is gratifying to know that neurologic and psychiatric principles, introduced to the author by a physiotherapist from Sweden and now reintroduced to this country by a nurse from Australia, have been taken over by the orthopedists and pediatricians of America to the great advantage of sufferers from poliomyelitis. (1942)

Kansas' First Physician Casualty

The first known Kansas medical corps casualty was listed in the November issue of the JOURNAL. Dr. Raymond Cunningham Stiles, thirty years of age, in the medical corps of the United States Army was killed in a crash of a United States Army transport on September 3, near Coamo, Puerto Rico.

Dr. Stiles, originally a Wyandotte County resident, attended the University of Kansas, was graduated from Baylor University College of Medicine in 1937 and interned in St. Margaret's Hospital in Kansas City in 1938 at which time he was a member of The Kansas Medical Society and of the Wyandotte County Medical Society. Recently he was stationed in the United States Marine Hospital in Buffalo, New York and before that at Ft. Knox, Kentucky. . . . (1942)

Shawnee County Medical Care Plan

RALPH W. CALLAHAN,* Topeka

When medical plans for the care of the medical indigent are mentioned, we still frequently hear individuals in the profession make substantially the following comment: "It's socialization of medicine and I don't want any part of it. I'll continue to contribute my services to the poor in the future as I have done in the past." It would be just as reasonable for the doctor who made this comment, to say of the new miracle drug "I've got along without it in the past and I will continue to do so in the future."

In the past twelve years many radical changes have taken place in our economic and socal life. The profession must keep pace with these economic and social changes as they have with the rapid advances of medical science during this same period. If we become isolationists or complacent in these matters and wait until the Federal Government sets up standards which are usually planned by lay persons and based solely on pure theory, you may depend on it that we will have socialized medicine in so far as the indigent and low-income group is concerned.

Fortunately a large majority of the profession in Kansas realize the need of organized medical plan for the care of the medical indigent and for the past few years have experimented with various types of plans, some good—some bad.

The so-called prepaid plan has been generally accepted by the profession as well as the State Department of Public Welfare, as socially and economically sound and superior to other types.

It has proven workable and retains the patient-physician relationship which is very essential. The Bureau of Medical Economics of the American Medical Association in their publication "Organized Payments of Medical Service" has this to say: "The principle of medical ethics is the only firm foundation on which to base a sound medical service. The county medical society is the only organization occupying the natural geographic unit and possessed of the necessary professional knowledge and the power to maintain the principles of medical ethics in the organization of medical service in a community." The county medical society is not only the logical unit on territorial and professional grounds, but it is also by tradition and discipline founded on the basis that "Reward or Financial Gain should be a Secondary Consideration."

Now that we are in the midst of a great war and face a serious shortage in the profession for care of the civilian population, it becomes more and more imperative that some sound plan be organized BY AND UNDER THE CONTROL OF THE MEDICAL SOCIETY for the care of the medical indigent. It should be obvious that a well organized plan, in addition to the many other things it will accomplish, will also greatly facilitate the handling of this type of case.

Space will not permit the argument for prepaid plan over the free basis at this time. There are several counties in the state now operating under plans quite similar to the plan of Shawnee County with perhaps the exception of the all important question as to who controls these plans, wherein lies the answer, the success of failure both economically and professionally. There is no sound argument regardless of the size of the county why the county society should not be in complete control.

After more than a year of negotiations, the Shawnee County Medical Society entered into an agreement with the Shawnee County Board of Social Welfare and the State Department of Social Welfare for the medical care of the indigent of Shawnee County. At that time Shawnee County had more than double the population of any other county that had at that time attempted to operate a similar plan. Several features which were new to Kansas and one which to the best of our knowledge is entirely original were tried. Many said in the beginning that the plan would not work; the county was too large and many other reasons, but after seven months the plan has worked and quite successfully.

The contract consists of seventeen paragraphs, the five basic paragraphs follow:

"Paragraph 3. RATE OF COMPENSATION.—That in consideration of the services to be rendered by Party of the Second Part, as hereafter set out, Party of the First Part guarantees that Party of the Second Part, thru their authorized agent, shall receive the sum of Three Dollars ($3.00) per month for each assistance grant on the county relief rolls as of the first day of each month.

"That all Old Age Assistance cases, Aid to Dependent Children cases, Blind Assistance cases and General Assistance cases may receive the benefits of medical care as herein defined from Party of the Second Part, if they choose to do so, by making payments at the rate of Three Dollars ($3.00) per month in advance except payment for all General Assistance cases as above provided shall be made di-

* Executive Secretary, Shawnee County Medical Society.

rectly to the Second Party by the First Party at the first of each month. If it appears expedient and practical for each case, lump sum payments may be made in advance. Such advance payments shall not exceed six (6) months and in the event death or ineligibility of the client effected, Party of the Second Party will refund all payments for the months following such death or ineligibility.

"That the agent of the Party of the Second Part, hereinafter named, shall furnish monthly to the Director of the Shawnee County Board of Social Welfare a list of names of the first three classes of assistance cases named in the preceding paragraph, namely, Old Age Assistance cases, Aid to Dependent Children cases and Blind Assistance cases whose payment is due and remains unpaid as of the tenth day of each month immediately after said date, and Party of the First Part shall pay in one payment to said agent of the Second Party on or before the tenth day of each month succeeding a sum equal to Three Dollars ($3.00) per grant for all assistance cases of all classes on the approved list of the Shawnee County Social Welfare Board who have not paid the preceding months payment directly to the Second Party's agent during the preceding month.

"Paragraph 4. FREE CHOICE OF PHYSICIANS. —It is mutually agreed by the parties hereto that all assistance cases, persons or patients effected by the provisions hereof shall have a free choice of physicians participating herein and in accordance with Section 5 of this agreement.

"Paragraph 5. SERVICE AS COUNTY PHYSICIAN.—That in consideration of said employment and the payment of the stated compensation, Party of the Second Part agrees to furnish ordinary and reasonable medical and surgical care compatible with the standards and ethics established by the profession and within the ability and scope of the participating physicians and within the customary and usual practice of the physicians participating in this agreement whereby the well being of patients is assured by providing them with the best possible medical care including ordinary and reasonable hospitalization, drugs and medicines, and specialized services, when such are approved by Party of the Second Part and when such drugs and medicines are included in a prescription issued to patients by participating attending physicians. It is understood, however, that the services above mentioned include only those which are deemed to be essential to the needs and welfare of patients and which are approved by Party of the Second Part.

"LIKEWISE: that the following services are not included therein: surgery and treatment not within the customary and usual practice of the Party of the Second Part's participating physicians; surgery and treatment for which necessary equipment, facilities or incidentals are not available or provided; dentistry, nursing; appliances including eye glasses, and services available thru other agencies. Party of the Second Part also reserves the right to require ambulatory patients to be treated and examined at designated times and places as is compatible with the circumstances of cases.

"Paragraph 8. TREATMENT OF NON-ASSISTANCE CASES.—That Party of the First Part will not be responsible for payments for services rendered persons or families not on County-approved Assistance list, or supplements thereto. Provided, however, that in emergency cases, for which, in the opinion of the Physicians' Committee, emergency treatment was necessary, and investigation by the County Director discloses that the case is eligible for assistance, Party of the First Part will pay for such emergency medical or surgical care, to the agent of Second Party, in lieu of the payments set out in Section 3 above, at the unit rate set out in the fee schedule hereto appended, and at the par value of One Dollar ($1.00) per unit. Provided further, that if treatment is needed by other non-assistance cases, and cases defined above as emergency cases, for which continued medical care is required following the emergency care and which are approved as eligible for assistance by the County Director, such treatment will be furnished by Second Party upon such cases being placed on the assistance rolls. Said payments for both types of cases to be paid to agent of Second Party and not to any individual of Second Party. It is further agreed that no cases not otherwise approved for assistance will be approved by First Party for medical assistance only, except as provided in this paragraph.

"Paragraph 14. LIABILITIES.—It is specifically understood and agreed that the physicians participating in this agreement are not partners and that they do not, by the execution of this agreement assume any of the rights or liabilities incident to a partnership. It is further understood that each physician shall be solely responsible for his diagnosis and treatment of such patients as shall come under his care and shall not be held liable by any one for the negligence of any other subscribing physician, whether such negligence arises out of the treatment of patients pursuant to this contract or otherwise."

Several months prior to the signing of the contract, a Social Medicine Committee was appointed and given full power to act on all matters concerning the proposed plan. After the acceptance of the contract, five subcommittees were formed, the members of the social committee acting as chairmen of the Sub-Committees on Drugs and Supplies, Clinic, Hospital, Unit Audit and Appeals and Complaints. The Sub-Committees handle various matters coming under their division as indicated. The General Social Medicine Committee meets regularly each week.

This committee acts on recommendations of the subcommittees and executive secretary, establishes policies and transacts such other business as it deems necessary and advisable.

One of the early acts of the Social Medicine Committee was to send out a questionnaire to all members of the society requesting that they indicate their perference as to the capacity in which they wished to serve. With one or two exceptions every member of the society responded. Working from this questionnaire, twenty eight members were assigned to home-call service, forty to the clinic staff and eleven for specialized services in their office or at hospitals. The Shawnee County Medical Society was particularly fortunate at this step of the organization as the city of Topeka turned over to the society all the facilities in their new modern and moderately equipped city clinic rooms. With these facilities the society was able to set up fourteen specialized clinics in addition to the general medical clinic which is held daily.

The specialized clinics are held once or twice each week and the entire staff is composed of forty doctors each one serving an average of two hours each week. In addition to the medical clinic the following Clinics are now in operation: Surgery, Gynecology, Eye, Ear, Nose and Throat, Pediatrics, Proctology, Tuberculosis, Child Welfare, Diabetic, Neuropsychiatry, Prenatal, Dermatology, Urology, Cardiology, and Venereal Disease.

As a general rule all ambulatory patients are required to report to the clinic for examination and treatment. When home calls are required the patients are allowed free choice among the twenty-eight physicians who have volunteered for this type of service. When surgery is required, the patient may also choose any surgeon in the society to perform such surgery as is required.

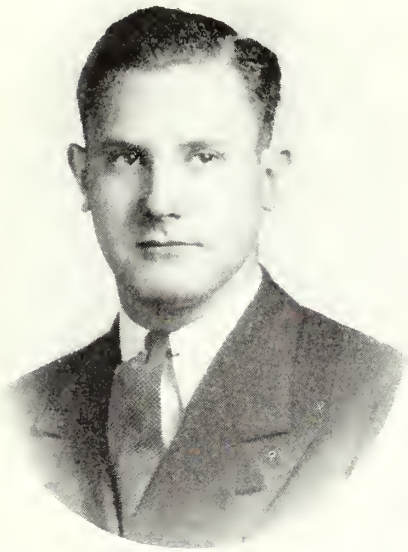
A dispensary is also maintained at the clinic where a druggist is employed by the society and fills the prescriptions during clinic hours. After clinic hours emergency prescriptions are either filled by the druggist authorized by the society or supplied by the attending physician from a kit issued by the dispensary. The average number of prescriptions issued in a month is around eighteen hundred.

The attendance at the clinic averages about fourteen hundred monthly; five hundred and fifty home calls are made monthly and three hundred seventy-five patients are seen in the various offices; an average of thirty-four patients are admitted to the hospital each month; average time in which these patients are in the hospital is approximately fourteen days.

After all funds from all sources have been received, for any given month, all bills are paid first; a small reserve set aside and the balance is then distributed to the individual participating member on a unit basis in accordance with an established fee schedule for services rendered.

Space will not permit further detail of the various activities. However, under this set-up the members are able to give the patients far better service than this class of people have received in the past. Since this work is co-ordinated the profession is able to do this more efficiently and with less effort for the same results. They have also been able to receive some small compensation for their efforts and a small reserve to tide them over in case of emergency. While the fine co-operation of the Shawnee County Welfare Department made the establishment and continuation of the plan possible, the major credit for the successful operation belongs to the Social Medical Committee who established the policies, and the fine co-operation of the individual members, all of whom have donated liberally of their time and services. (1942)

The Years When The Headlines Told The Story



Raymond C. Stiles, first member of The Kansas Medical Society to become a casualty in World War II.

Winter General Hospital, Topeka, opened in 1943.

December 8, 1941
The United States declares war on Japan.

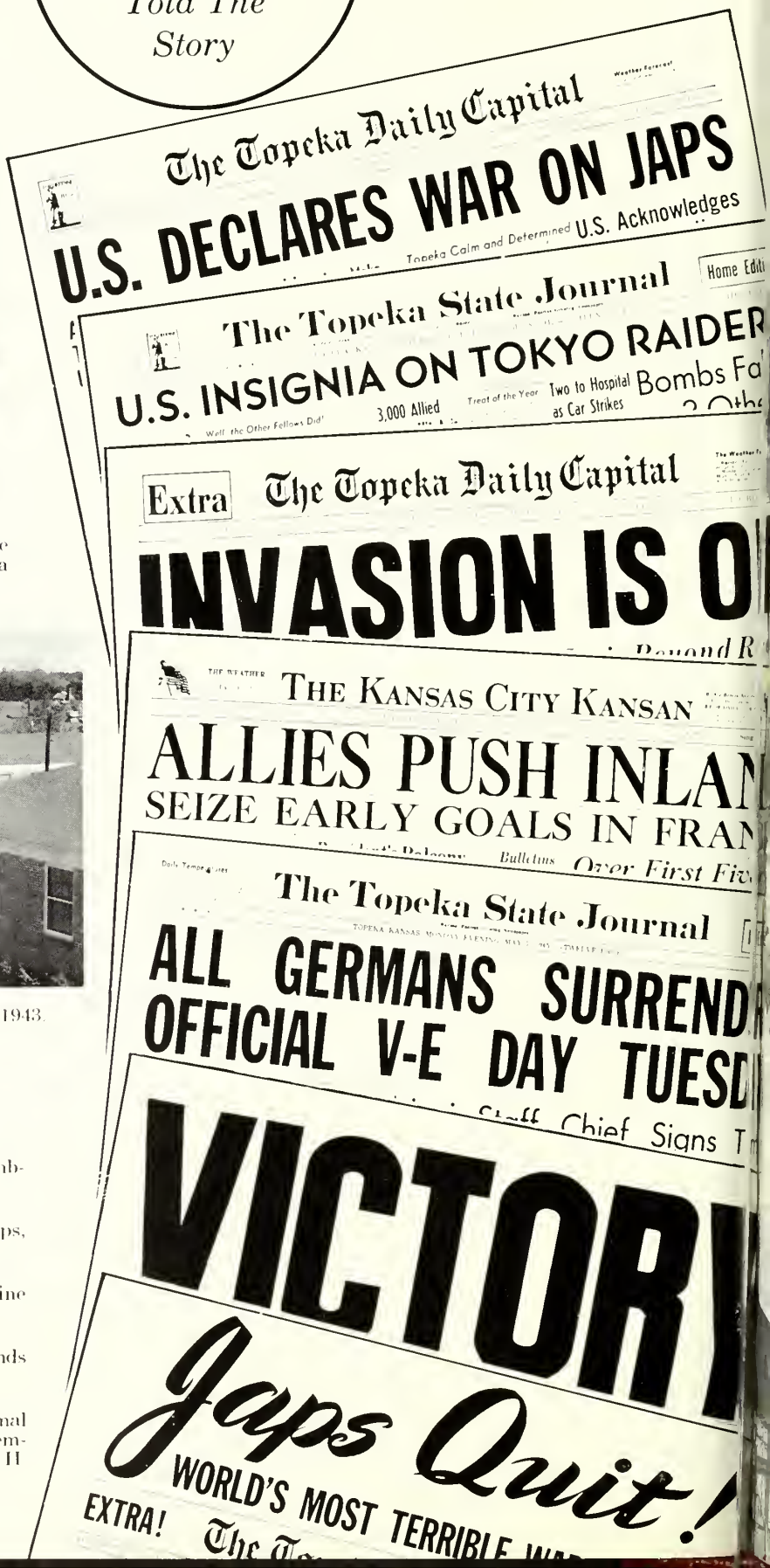
April 18, 1942
First U. S. warplanes, effect successful bombing raid on Tokyo.

June 6, 1944
American, British and Canadian Troops, land in Northern France.

June 6, 1944
Full scale invasion operation drives nine miles inland in first day of action.

May 7, 1945
Unconditional surrender of Germany, ends European phase of the war.

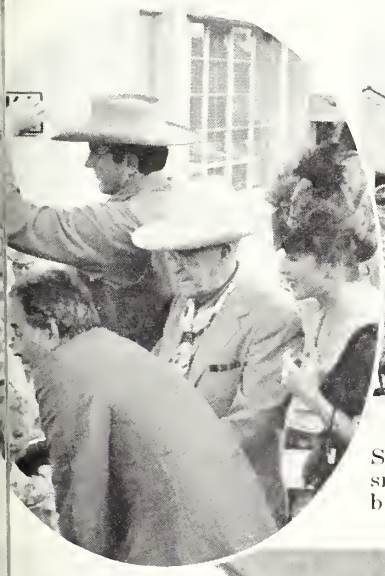
August 15, 1945
Japan surrenders unconditionally. Formal signing of surrender terms, made on September 2, 1945, thus ending World War II



And In The 50's Kansas Is In The National Spotlight

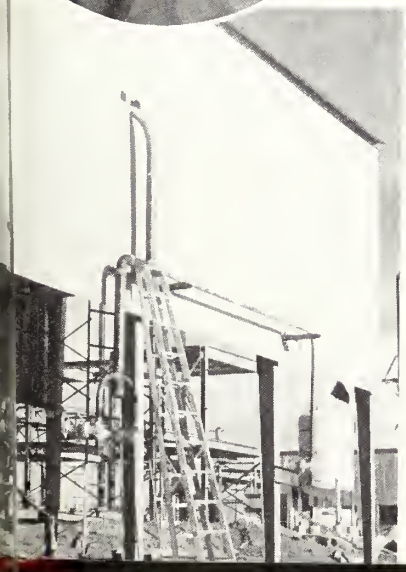
isenhower Memorial, Abilene, Kansas, opened in 1954. A nation-wide urist attraction as it houses the President's collection of souvenirs and mementos assembled during his long military career.

The President and Mrs. Eisenhower arriving in Abilene for an inspection tour of the Eisenhower Memorial Building, in the fall of 1958.



Stars of the popular TV program, "Gunsmoke," attending the Front Street celebration at Dodge City, (October, 1958).

The completed restoration of Front Street in Dodge City, Kansas, (1958).



A view of The Callery Chemical Company, during construction, 1957. The concern manufactures fuel for

One of the world's largest grain elevators, Hutchinson. The structure is a half mile long and has a capacity of 17 millions bushels of grain.

Effect of Sulfonamide Therapy on the Common Cold

LIEUTENANT A. J. KAUVAR and
LIEUTENANT COLONEL FRANK R. MOUNT, Fort Riley

It is generally conceded that chemotherapy has no beneficial effect in the treatment of most virus diseases, common upper respiratory infections, or the recently described primary atypical pneumonias. A brief review of the literature failed to reveal any controlled observations on the use of chemotherapy in the common cold. Prompted by the clinical impression that the dangers of sulfonamide therapy far outweighed any advantages that might be obtained from its use in the common upper respiratory infections of unknown etiology, a study was instituted to clarify this point.

The clinical data presented here are based on a study of 127 patients from the Medical Service of the Station Hospital, Fort Riley, Kansas, admitted between November, 1942, and January, 1943. These patients were divided into two groups: (a) Seventy-five cases . . . were treated symptomatically, and without the use of sulfonamides. (b) Fifty-two cases . . . were treated with one of the sulfonamide drugs in addition to the symptomatic therapy instituted in the first group. The history, clinical and laboratory findings have been studied in an effort to determine whether the use of chemotherapy had any beneficial effect in altering the course of the disease. . . .

It is apparent from the cases studied here that the use of chemotherapy as a routine in uncomplicated respiratory infections had no effect in altering the course of the disease. The hospital stay of the patients receiving chemotherapy was not shortened to any appreciable extent. . . .

If chemotherapy has no effect in shortening the course of the disease or in preventing complications, there would seem to be no justification for its use in the common cold. Although we were extremely fortunate in not having had serious complications secondary to the sulfonamide administration, mild reactions were present in three cases. Complications secondary to chemotherapy administration are probably more frequent than the complications that may develop in the untreated common cold. It has been estimated that one in 1,000 patients with colds will develop pneumonia, whereas the complication rate secondary to sulfonamide administration is much greater. Furthermore, the complications secondary to sulfonamide administration in a sensitive individual may be extremely serious as has been shown many times. Thus the complications of sulfonamide therapy may not only be more serious than the complications of the common cold, but also more frequent.

Furthermore, there is increasing evidence to the effect that numerous pathogenic bacteria may acquire a tolerance or resistance to one or more of the sulfonamide compounds. They then become able to multiply in the presence of the usual bacteriostatic concentration of these agents. Consequently, sulfonamide-fast infections often do not yield to many times the usually successful therapeutic doses of sulfanilamide, sulfathiazole, or sulfadiazine. Generally speaking, this acquired sulfonamide fastness is believed to be due to increase production of sulfonamide inhibitors by the organisms.

This immediately suggests that there may come about the selective propagation of drug resistant bacteria. It is conceivable that the dissemination of these resistant organisms by carriers will ultimately curtail the value of sulfonamide therapy.

In addition, there is a growing body of evidence, clinical and experimental, indicating that the number of toxic reactions following sulfonamide therapy is much greater in those individuals that have previously received one of the sulfonamides. Consequently, the use of chemotherapy in a trivial case may sensitize the individual so that its use is contraindicated in a more serious illness where its use is urgently needed. . . .

It would seem wiser to reserve the use of chemotherapy for those cases where a proved therapeutic indication exists. It should not be withheld in those severe upper respiratory cases where fever and symptoms show a tendency to increase along with increasing leukocytosis and evidence of spread of the infection into the parenchyma of the lung, by either physical or roentgen examination. (1943)

Thiouracil in the Treatment of Hyperthyroidism

ROBERT E. BOLINGER, M.D., Kansas City

The clinical use of thiouracil in the treatment of hyperthyroidism is unique in that it is apparently the first example of a synthetic drug which actually specifically depresses the action of an endocrine organ. Furthermore, it is another interesting example of a clinically useful drug which evolved from the extensive reservoir of experimental biology and medicine. Indeed, twelve years ago the first references to this subject were relegated to the abstract and considered only incidental to the main problem, i.e. etiology of goiter. These references were concerning an epidemic of goiters in laboratory rabbits, the cause of which was found by Webster to be the large amount of cabbage in the diet. The effect was independent of the iodine content. A conjecture at this time, later contradicted, was that a cyanide in the cabbage was the active agent, causing a depression of tissue metabolism and compensatory hyperplasia of the thyroid tissues. In 1938 it was shown by Sharpless that a similar condition could be produced by feeding a soybean diet, and later the range of goitrogenic foods included all of the Brassica seed vegetables. Attempts to show similar effects by pure chemicals were then undertaken. Enlargement of the thyroid was produced by feeding sulfaguanidine to rats and also by feeding phenylthiocarbamide.

Systematic investigation of these drugs and their properties was undertaken in 1943 by Astwood. An important feature of his work was the emphasis on the systemic effects of these drugs, showing a definite decrease in rate of oxygen consumption and metabolism. The old idea of depression of tissue metabolism then became untenable, because the metabolic depressant effect was reversed by feeding desiccated thyroid. The drug having the most powerful depressant effect was 2-thiouracil (2-thio-6 oxypyrimidine). Other substances which were active were thiobarbituric acid, aniline, sulfa drugs and thiocyanates.

It was also found that iodine would reverse the metabolic depressant effect in some and not affect it in others. Thiouracil belonged to the latter group.

In 1943 Astwood reported the first cases in which the drug was used clinically. There were three cases, all showing an abrupt reduction in metabolism to normal or below and marked relief of symptoms. The only toxic manifestation was a transient leukopenia relieved by withdrawing the drug. Nine cases were reported by Williams and Bissel. These also showed a very favorable response. In most of these cases surgery was not used. Eleven cases were reported by Bartels in which the drug was used preoperatively.

In our clinic the drug has been used on several cases selected at random, and six of these are described below. In several of our cases here we have combined x-ray irradiation of the gland with the drug. This we believe aids greatly in reducing the actual size of the gland.

Case Reports

Case I—E. W., a fifty-seven-year-old white male, treated as an out-patient. The patient's history dated back to 1937 when he had loss of weight, palpitation, shortness of breath, and some swelling of the ankles. Exophthalmos was present at that time and also a large goiter. At that time in another clinic he was diagnosed as exophthalmic goiter and placed upon Lugol's solution and digitalis. He improved to some extent, but after some time his symptoms recurred and became progressively worse until he was seen here February 5, 1944. At that time he was edematous, dyspneic, and totally unable to work.

Physical examination revealed a typical exophthalmos and marked diffuse goiter. Obvious dyspnea and edema were present. Pulse rate was 100 and BMR was plus 48. Weight was 150. Electrocardiogram at that time showed an inversion of the T wave in leads 1 and 4-F, and a depressed ST take-off in lead 2.

The patient was started on thiouracil, 0.6 gram daily. X-ray therapy was started and a total of 744 RU given until March 15, 1944. In about a week there was a distinct improvement in the symptoms although the patient was ambulatory. On February 15, 1944, the BMR was plus 40 and the pulse had fallen to 80.

On February 25 the BMR was plus 30. By March 15 the BMR was plus 5 and the pulse was 70. Weight had gone to 170 pounds. The patient was relieved of his symptoms and able to return to work. The goiter itself had decreased to about thirty-five per cent of its original size. The electrocardiogram on April 18 showed an upright T wave in all leads and a normal ST take-off in lead 2.

The patient at present is on 0.2 gram of thiouracil daily and doing very well. He was treated as an out-patient at all times.

Case II—G. K., a twenty-eight-year-old white female seen as an out-patient on January 15, 1944. This patient had been complaining of nervousness, palpitation, and loss of weight of gradual onset.

Physical examination revealed a moderate amount of exophthalmos and a diffusely enlarged thyroid. Pulse was 120; blood pressure, 160/90; BMR, plus 58; weight, 118 pounds. The electrocardiogram showed some depression of the ST take-off. The patient was started on 0.8 gram of thiouracil daily and small doses of calcium iodide. Within ten days the patient felt better. On February 15, 1944, her findings were as follows: pulse, 105; blood pressure, 140/70; BMR, plus 45; weight 130 pounds.

On March 15, 1944, she felt practically well and her findings were: pulse, 90; blood pressure, 145/70; BMR, plus 30; weight, 135 pounds. Her goiter had decreased some, but not enough, so x-ray treatment was started as in the above patient. The dosage of thiouracil was cut to 0.3 gram daily. By April 15, 1944, the patient felt entirely relieved of her symptoms and complained of gaining too much weight. Her pulse at that time was 80; blood pressure, 130/70; BMR, plus 12; weight, 139.5.

This patient is still being followed and is on 0.2 gram of thiouracil daily.

Case III—G. V., forty-seven-year-old white male, admitted to the hospital on May 16, 1944. Symptoms began three years prior to admission with weakness and nervousness, which became progressively worse until admission. He had loss of thirty pounds of weight and experienced palpitation of the heart.

Physical examination revealed moderately severe exophthalmos, a tremor, and large diffuse goiter. Orthopnoea was present. There was auricular fibrillation. Pulse rate was 100 and the cardiac rate was 118; blood pressure was 140/80; BMR, plus 61; weight, 124; cholesterol, 188 mg. per cent.

The patient was then given thiouracil, 0.4 gram daily, and little improvement was seen until the dosage was increased to 0.6 gram daily on May 20, 1944. On May 27, 1944, the findings showed BMR to be plus 39; pulse, 72, but still fibrillating; cholesterol was 230 mg. per cent. At this time he felt much better and there was a definite reduction in exophthalmos and tremor. On June 5, 1944, the patient showed a pulse which was still fibrillating but at a rate of 80 and no pulse deficit. BMR then was plus 30 and cholesterol was 232 mg. per cent. Little change in weight was observed. X-ray to the thyroid was started on June 1, 1944.

This is a fairly resistant case but has shown definite improvement.

Case IV—C. S., twenty-nine-year-old white female, admitted to the hospital. Her complaint was nervousness, loss of weight and a "pop-eyed" expression. She had experienced these symptoms for about a year.

Physical examination revealed an apprehensive female with severe exophthalmos and moderate diffuse enlargement of the thyroid. Tremor was present. Pulse was 135, BMR was plus 59. Weight changes were insignificant.

She was placed on 0.6 gram thiouracil daily on March 20, 1944. On April 3, 1944, her pulse was 105 and the BMR, plus 38. She was feeling much better. On April 10 she had a pulse of 90 and a BMR of plus 33. The patient went home and in the meantime ran out of the drug. She came back a month later for operation, having been out of the drug for ten days. Her condition was essentially the same as when she left. She was operated on with an uneventful recovery.

Case V—L. T., sixty-five-year-old white female, admitted to the hospital on May 21, 1944. Her complaint at that time was chronic arthritis of about ten years duration and nervousness which began about four years ago. The nervousness described was characterized by a tremor of the hands and inability to sleep. She had had some dyspnea on exertion and some ankle edema, which was present at the end of the day.

Physical examination revealed a fairly well nourished white female who was not acutely ill. The head was essentially negative. Examination of the neck revealed that the left lobe of the thyroid was enlarged, firm and freely movable; this enlargement measured about six cm. by two cm. Examination of the chest revealed that the heart was normal in size and had a systolic murmur at the base, transmitted into the neck. Blood pressure was 155/85. About a one plus edema of the ankles was present. The pulse on admission was 120. Basal metabolic rate was plus 46. The patient was found to be a mild diabetic. A diagnosis of toxic nodular goiter was made, and it was advised that she have the adenoma removed. However, the patient was adverse to this, and the following regime of treatment was instituted: She was given small doses of digitalis, not to produce complete digitalization by any means, and was placed on thiouracil, at first 0.1 gram three times a day, and in three days this was increased to 0.1 gram six times a day. She was given no iodide and only small doses of phenobarbital as supportive treatment.

On May 31 the patient was dismissed from the hospital. At this time her basal metabolic rate was plus 20 and her average pulse rate was about 85. Clinically she had improved greatly, there was no dyspnea present, and the ankle edema had subsided. The follow-up study on the patient approximately a month later revealed that she was feeling even better and had had no recurrence of her symptoms at all. At this time she was ambulatory and had been taking doses of thiouracil ranging between 0.3 and 0.6 gram daily. Basal metabolic study done in another laboratory at this time showed little change.

Case VI—W. J. twenty-year-old colored female,

admitted to the hospital on June 5, 1944. Her complaint at that time was nervousness, weight loss, with ravenous appetite and dyspnea. Her illness started about two months before admission, with a weight loss which was present in spite of a ravenous appetite. She became nervous and could not stand small noises; she was restless and could not sit still. She had some shortness of breath in bed. She had developed a dry, hacking cough in the two weeks before admission, had lost twenty-eight pounds during the past two months, and had noticed a large mass in the neck.

Physical examination revealed an emaciated colored female who appeared to be very nervous. Her eyes showed a moderate amount of exophthalmos. Head was otherwise normal. In the neck there was a firm, movable, non-tender thyroid, enlarged to about three times the normal size. Both lobes were enlarged equally. Examination of the heart revealed a rapid rate and a functional systolic murmur at the apex. No other abnormalities were found here. The abdomen and extremities were essentially normal. The tremor of the hands was very fine and not related to intention. Mosenthal test was done on the patient and revealed poor concentration and poor elimination of the fluid. Also, her cholesterol was 328. It was felt that this, in connection with the increase of slight ankle edema and the poor results of the Mosenthal test, would indicate the patient had some degree of chronic glomerulonephritis. In addition, the x-ray findings revealed a minimal amount of tuberculosis in the apex of the lung, the activity of which is not considered to be very great.

Her basal metabolic rate on admission was plus 61, and her pulse was 130. Her weight at that time was 107. The patient was started on thiouracil and given 0.8 gram of the drug daily in divided doses. She was also given phenobarbital and Lugol's solution.

On June 12 her basal metabolic rate had fallen to plus 36. At this time the patient's weight was 106 pounds, and her general condition seemed to be a little better. However, she was still very toxic. Her pulse had shown no improvement at this time. On June 20 her basal metabolic rate was plus 34, she began to show more improvement, and the average daily pulse rate was about 100. Her weight was then 108. We felt that the effects of thiouracil were definitely noticeable. On June 26 her basal metabolic rate was still about 34, and the average daily pulse was running around 95. Her weight had begun to take a definite rise and was now up to 112 pounds. About June 15, passive edema of the ankle was noticed. This lasted only about one day, and it was felt that it was probably due to the large dosage of the drug which was being administered. Transient edema was reported by Astwood. On July 3 the BMR was plus 11 and the pulse was 92. The weight was up to 115.

This patient is still being followed in the hospital, and it is felt she is a fairly resistant case. It must be remembered that her case was complicated by a chronic nephritic condition and a tuberculous condition of questionable activity. These two factors may have something to do with the resistance. However, definite improvement has been noticed, as shown by the above description.

Discussion

In evaluating clinically the significance of this new drug, we must take into consideration the clinical benefits that have been derived in the past from the usage of Lugol's solution, bedrest, and phenobarbital. In these cases treated in this hospital we have noticed, however, several differences between the thiouracil and the iodine treatment:

(1) The effects of the thiouracil appear to be manifest even though the patient is ambulatory and not treated as a bed patient. This is illustrated in cases I, II, and V.

(2) The patient does not seem to become tolerant of the drug as he does with iodine. In fact, in several cases here that we have followed long enough, the dosage of thiouracil has actually been cut down rather than increased, as it has to be with the Lugol's solution. This is illustrated in the cases above, namely I, II, and V again.

(3) Thiouracil seems to produce results in patients who are resistant to iodine as well as in those who are not.

(4) We have noticed a definite but variable latent period in the effects of the thiouracil. Almost uniformly in our cases here there has been a definite improvement in the clinical symptoms before there have been any of the objective findings, such as the basal metabolism and the pulse and blood pressure.

With the facts in mind, we believe that thiouracil has a definite place clinically in the treatment of hyperthyroidism. In fact, we believe that in many cases it has definite advantage over the use of Lugol's solution and in some cases it is apparently satisfactory in the treatment of even those with severe toxicity in lieu of operation. The indications are that the drug may entirely correct the physiological and functional manifestations of the disease. Surgery would then be limited to the removal of the enlarged gland, or in other words, the correction of the mechanical factor. Cases I, II, and III illustrate very nicely the use of x-ray in correcting the mechanical factor. In all these cases a very good result was obtained, and at

the same time did not expose the patient to the danger of surgical operation. However, any final conclusion regarding the prolonged clinical usage of this drug will have to await further follow-up on these patients. Only a follow-up over a long period of time will give us an idea of the permanency that can be expected from its use. In every case here in which the drug has been tried, we have noticed a definite improvement providing the drug was continued long enough.

ADDENDA—Since this paper was submitted for publication, case III has gained 25 pounds, the heart has stopped fibrillating and the rate is 72; case VI has gained 10 pounds more and her BMR became 0 in addition to complete amelioration of symptoms. (1944)

Editorial

Kansas Physicians' Service

Kansas Physicians' Service has become a corporate entity. By virtue of authority granted in the recently enacted Non-Profit Medical Service Corporation Act, the corporation was formed in Topeka on May 5 and the primary phase of organizing the medical service plan for the people of Kansas was completed.

Results of the two years of research by the Committee on Medical Economics, presented in the form of a tentative plan based upon study of the plans now operating successfully under medical society sponsorships, were approved by the Board of Councilors and recommended for adoption. By executive order of our president, a group of incorporators was formed from the entire membership of the council, including also the new president and president-elect and the chairman of the Committee on Medical Economics. After completion of the legal steps toward organization of the corporation and preparation and adoption of the necessary documents to file for a charter, the incorporators met as the temporary Board of Directors and elected the following officers: Dr. Barrett A. Nelson, president; Dr. John L. Lattimore, vice president; Dr. W. M. Mills, secretary-treasurer; Oliver E. Ebel, executive vice president. Within 60 days the temporary Board must have obtained nominations from each county medical society and a permanent Board of Directors shall be elected with representation from each councilor district.

The council-approved plan, subsequently endorsed by the House of Delegates, follows closely the directives laid down by the 1944 House of Delegates when it acted on the preliminary report of the committee. It provides medical services for the more serious illnesses, surgical services including fractures and dislocations, obstetrical services, and limited diagnostic x-ray services. Complete coverage is offered to the lower income groups of surgical and obstetrical services, with payment of benefits to be applied as indemnities against the usual and ordinary fees charged by any physician for those in the upper income levels. Strict adherence is maintained to continuance of the time-tested patient-physician relationships. There is completely free choice of physician. Any physician is free to accept or reject any patient, as always. No effort or suggestion is made to change any phase or detail of the physician's position with respect to his patient, except to offer a proven method of aiding the patient to obtain his services in a manner relieved of the financial stresses of our present fee-for-service system.

The plan is based on a Schedule of Benefits carefully selected after consideration of wide experience. It is believed to offer the average fees charged to patients of the so-called middle class, reduced by approximated credit losses and collection costs. This schedule then makes possible the offering of this saving to the patient at the same time rendering the physician his usual return, free from the uncertainties, worries and harassment of his former methods of charging and collecting for his services.

In a broader sense the plan fills an even more important, a sociological role. Under our plan the people of Kansas are offered a better, more readily obtainable, and an expanded medical service. Just as hospital service has become accessible to many from whom it was denied before Blue Cross plans came into effect (even to the point of over-crowding hospitals and making expansion of hospital facilities necessary), so now it will follow that the highest type and quality of medical and surgical services shall be available to large numbers whose economic status formerly restricted their ability to obtain such services.

Kansas medicine has asked for the opportunity to offer its answer to the widespread demands for a method to relieve the economic burdens of sickness through a method of budgeting payments. Kansas medicine, convinced that the interests of the patient

can best be served by vesting control of such proposals in the medical profession, has galvanized its beliefs into action and proposes to prove that we offer a better, more acceptable, more American method, in a non-compulsory, voluntary, non-profit plan which pays cash dividends to no one, protects the interest of the patient, is free from political interference and coercion and cannot be used to wield political influence or win political favor, not to mention siphon off to political or other purposes large fractions of the patient's medical dollar instead of converting that dollar directly into the medical service for which it was intended.

To bring the benefits of the plan to full fruition will require gradual growth and some time. Expansion must be on sound principles with gradual adjustment and re-adjustment to fit the peculiar needs of our own notably individualistic population. Further, and of vital importance, complete success requires full co-operation of our society membership. Kansas Physicians' Service is merely the agent for the participating physician, contracting for him with the patient. It is the participating physician who offers the service, who is behind the plan and who guarantees its effectiveness and success. Success of the plan depends entirely on the prompt and complete co-operation and support of every member of the Kansas Medical Society.

Participating Physician's Agreements will shortly be in the hands of every county society secretary, together with copies of the By-laws of the corporation, and the Subscription Agreement which sets forth the benefits to be provided and all attendant conditions. These have been carefully considered and approved by our Committee on Medical Economics, our Board of Councilors and the state society officers. They will be subject to administration and effective use as well as reconsideration and revision from time to time, by the Board of Directors which represents every councilor district. The Board of Directors can act effectively only if it is backed by the full membership. It is imperative, therefore, that each Participating Physician's Agreement be promptly signed and returned to the Topeka office.

Delaware boasts that 98 per cent of her doctors are signed up as participating physicians. Give that kind of support to Kansas Physicians' Service and it can only succeed in fully accomplishing all the objectives it has raised, confident with complete faith in the fundamental soundness of the principles upon which it is founded.—*Barrett A. Nelson, M.D., President, Kansas Physicians' Service.* (1945)

Editorial

German Measles and Congenital Defects

In 1941 a report from Australia first called attention to the possibility that certain congenital malformations in an infant might be traceable to German measles occurring in the mother during the first trimester of pregnancy.

The Australian report studied a series of 78 infants in whom congenital cataracts occurred. In 44 of these a congenital heart lesion was also present. Almost without exception the mothers gave a history of rubella during the early stages of pregnancy.

In a later series of 31 mothers who gave birth to children with congenital defects, all but two had German measles during the first three months of pregnancy. Twenty-five of these had rubella during the first two months and all later gave birth to infants with congenital defects. Only 50 per cent of the mothers who developed rubella during the third month of pregnancy had congenitally defective children.

In August, 1944, Benjamin Rones, M.D., published an article on this subject in Medical Annals of the District of Columbia. He reviewed his cases in the light of this possibility and found the same situation to exist. Dr. Rones closes his article with these two paragraphs:

"It is not to be understood that all cases of congenital ocular abnormalities are due to an exanthematous disease in the mother during pregnancy. Undoubtedly many other factors can operate to produce such disturbances. However, Swan et al. claim that all mothers with such exanthemata during the first two months of pregnancy will give birth to children with congenital abnormalities, and certainly my own findings tend to bear him out.

"Rubella has been regarded as one of the most innocuous of the exanthematous diseases. We are now faced with the fact that the virus attacking a pregnant woman before the placental barrier has been developed can cause a disturbance to the developing fetus, and particularly to the optic buds."

Last month the *Journal Lancet* added two more

case reports to the 122 described in earlier articles. This paper, by Forrest H. Adams, M.D., University of Minnesota Medical School, agrees in substance with previous opinion on the subject. Dr. Adams advises that "every attempt should be made to prevent exposure to such a disease. If exposure occurs in spite of precautions, such prophylactic measures as administration of pooled convalescent adult serum should be given a trial."

Here also is gathered a bibliography including 14 papers which could serve as a basis for someone wishing to investigate the subject further. Discussions on this topic have been heard in widely separated areas of Kansas. Opinions and statistics have been added locally to existing information.

The JOURNAL will welcome a scientific paper on this subject. Perhaps such a paper could come from a study made jointly by the Child Welfare and Maternal Welfare Committees, thereby adding the benefit of statewide investigation. (1945)

Penicillin and Streptomycin—a Review of Their Current Uses

HERBERT A. WENNER, M.D., Kansas City

Antibiotics are substances prepared from the products of certain living organisms, particularly fungi. Some of these substances exert a powerful antagonist effect upon the life and growth of specific bacteria. Emmerich and Loewe in 1899 isolated a substance from *Pseudomonas aeruginosa* which inhibited the growth of diphtheria, cholera, plague and typhoid organisms. They called this substance pyocyanase. Pyocyanase was not of clinical value in as much as it poisons animal cells. In 1929 Fleming observed that a mold which had contaminated his culture plates lysed staphylococcal colonies. His inquiring mind led him to the knowledge that this mold, later identified as Penicillin notatum, Westling, produced a substance which inhibited the growth of pyogenic cocci and the diphtheria-group of bacteria. The coli-typhoid and influenza bacilli were unaffected. Fleming gave to this antibacterial substance the name penicillin. In these early years following the discovery of penicillin few clinical trials were made and the substance was used by Fleming as a bacteriological tool.

In 1935 Domagk reported that sulfamidochrysoidine, which is hydrolyzed in the body to sulfanilamide, protected mice against fatal doses of streptococci. A large group of sulfonamide drugs was soon made and used widely in treatment of infectious diseases. A few investigators notably DuBos in America and Chain and Florey in England searched for bacterial antagonists produced by natural enemies of bacteria occurring in Nature. DuBos in 1939 developed in soil a bacterium which following autolysis inhibited the growth of a variety of gram-positive bacteria *in vitro*, and under stated conditions afforded a high degree of protection to mice inoculated with virulent pneumococci. Three active substances were prepared from the bacterial autolysate. They are named *tyrocidine hydrochloride, gramicidin,* and *tyrothricin*. All three substances show clear cut inhibition to gram-positive bacteria *in vitro*. Unfortunately they are injurious to some animal cells, particularly the red blood cell; hence, clinical use of these drugs is of limited value.

In 1940 Chain, Florey and associates cooperated with Fleming in studying the therapeutic value of penicillin. It was quickly appreciated that in penicillin a substance had been found which had heretofore unexcelled bacteriostatic power, particularly in regard to staphylococci, streptococci, gonococci, and clostridia. Moreover, its index of toxicity to living cells was very low. War casulties required large quantities of a drug such as this be made available, and within a short time huge quantities were produced in this country.

The search for new antibiotics continued (Table I). Schatz, Waksman and Bugie found that *Actinomyces griseus* elaborated a substance which inhibited *in vitro* the growth of gram-negative bacteria. This substance they named streptomycin. Other antibacterial substances have been found, among them streptothricin, flavicidin and subtilin. These substances are not in use currently to treat disease in man because they are poisonous, or they have no advantage above those in use.

Use and Limitations of Antibiotics in Infectious Diseases

The recognition of disease leads to proper application of remedies, and other means failing wisely provides for termination of useless treatment. Penicillin and sulfonamides are widely used and not always wisely. The indiscriminate use of these sub-

stances in fevers of obscure etiology is to be condemned, for reasons which are obvious. When small doses of these drugs are given there is the risk that sensitive strains will be weeded out and a heartier race of bacteria survive to resist large doses of these drugs. Also in grave infections with apparently trivial onset the administration of antibiotics may obscure the true nature of the infection and valuable time is lost in instituting proper treatment.

The use of antibiotics in the treatment of infectious diseases should be supported by bacteriological studies. These studies must be directed by the clinician in order that the bacteriologist may know how to start his search. Cultures of body exudates and discharges, and blood cultures reveal pertinent and occasionally surprising information.

Moreover, it is necessary from time to time to determine the sensitivity of the infecting organism to sulfonamides, penicillin and streptomycin. This is not always essential, since the range of sensitivity of organisms to these drugs has been explored, and the dose necessary to control infection caused by susceptible organisms known, at least in part. Bacteria become resistant for reasons to be stated later. Hence, when the patient is not responding as expected, it may be informative to know the sensitivity of the bacterium causing illness. It may be desirable also to learn what concentrations of these drugs are present at a given time in the blood stream. Simple methods for these determinations will be described.

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Action of Penicillin and Streptomycin Against Bacteria

Susceptible Bacteria. A wide variety of infections is caused by bacteria against which penicillin and streptomycin are fully effective. Some of the bacteria susceptible to these drugs *in vitro* are listed on Table II.

There is wide variation in the sensitivity of bacteria to penicillin and streptomycin. Members of alien races differ in resistance to these drugs; members in the same tribe and species are unequal in sensitivity to streptomycin and penicillin.

To some extent this difference in susceptibility of bacteria to antibiotics explain differences in therapeutic response.

In addition to *natural resistance* among strains of bacteria there is the problem of induced or acquired resistance. Resistance to the action of penicillin has been induced in organisms which were initially sensitive to the drug by growing them in a medium in which the concentration of penicillin is progressively increased. Resistance to penicillin has been developed by strains of *Staph. aureus, Str. hemolyticus,* and *N. gonorrhoeae,* among others. In a similar manner strains of gonococci and meningococci have become resistant following repeated transfer in increasing concentrations of streptomycin. Of much more serious nature has been the clinical experience that strains of staphylococci develop resistance during treatment with penicillin. Strains of coli-aerogenes bacilli may quickly become resistant to streptomycin. At this time susceptible strains of bacteria appear to develop resistance to streptomycin more easily and speedily than they do to penicillin.

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Toxicity of Penicillin and Streptomycin

Penicillin. No significant toxic effects have been noted following systemic therapy with the sodium or calcium salt of penicillin. The most common complication is urticaria. Urticarial wheals appear between the fifth and tenth day of treatment. These may be benefited by epinephrine or benadryl. There may be a transient azotemia. Thrombophlebitis occurs during continuous intravenous medication. The intrathecal injection may produce headache, vomiting and pleocytosis. Walker among others notes that penicillin given intrathecally can cause changes in the arachnoid, alter nerve fibers and produce radiculitis. Convulsions may occur.

Streptomycin. A number of toxic reactions have been noted following parenteral injection of streptomycin. Among these are flushing of the skin, and a sense of fullness shortly after injection of the drug. Headache, transient urticaria and fever may occur also. Buggs et al. report two patients who lost consciousness following rapid intravenous injection. Recovery occurred in a few minutes. Thrombophlebitis occurs. There may be generalized aches and pains in the joints. Fatty metamorphoses in parenchymal cells of the liver and the tubular epithelium of kidneys have been seen in experimental animals. Eighth nerve deafness has occurred also. When the dosage in adults is kept under 1.0 Gm. daily, few reactions occur.

Clinical Use of Penicillin and Streptomycin

Penicillin is a drug possessing herculean ability to combat infection caused by a number of bacteria. It is not a panacea for all of the infectious diseases; its use in serious illness is based on an understanding of the underlying disease process. Of itself, it cannot promote healing except by bringing to a halt bacterial growth. By retarding bacterial growth the normal defense and reparative mechanisms of the body are mobilized.

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Streptomycin is a more recent antibiotic than penicillin. Its field of usefulness has been tested by many clinical investigators under the direction of the National Research Council. The entire range of use-

fulness of this drug has not been adequately explored, but, existent knowledge in view, streptomycin is not as good as penicillin for at least two reasons, namely (a) it is more toxic, and (b) bacteria quickly develop resistance to its action.

Microorganisms that are susceptible to the action of streptomycin vary widely in their sensitivity. As noted earlier, many strains of organisms initially susceptible to 5 or 10 micrograms of streptomycin per cc. often acquire resistance *in vitro* to enormous amounts of this drug. It has also been shown that in the presence of blood or serum the tolerance of bacteria to streptomycin may be increased 4 to 8 times. It is desirable then to maintain a concentration of streptomycin in the blood 4 to 8 times that necessary to inhibit the bacteria *in vitro*.

Streptomycin is active against bacteria which have proved most resistant to penicillin, namely the gram negative bacteria. It is also effective against some gram positive bacteria.

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Summary

This review brings together somewhat summarily recent clinical and experimental observations concerning two antibiotic substances, penicillin and streptomycin. Penicillin, used first in crude form, has been explored in the treatment of infections more completely than streptomycin. Its field of usefulness is wider than that of streptomycin. In the past few years with further purification of penicillin, a number of fractions have been identified, known in this country as penicillin F, G, K, and X. Commercial penicillins consists almost entirely of penicillin G; some may contain appreciable amounts of penicillin X. Some of these fractions are more active against bacteria than others. Further clinical and experimental observations will be needed to fully evaluate the place of these penicillin fractions in therapy.

Streptomycin is a valuable antibiotic, but in comparison with penicillin, it has a number of drawbacks. It is more toxic to humans and bacteria quickly develop resistance to it. These limitations have been amplified in the text.

The search for antibiotics is carried on in many places. Undoubtedly, there will be additional substances found which will prove valuable in the treatment of diseases caused by microorganisms insensitive at this time to antibiotics which are not harmful to the economy of the human cell mass. (1947)

Court Denies Osteopaths' Request

Between April 19 and April 22, 1948, the trial of a case filed by osteopaths of Kansas against the Governor and the Attorney General was heard in Topeka. Three United States Circuit Court judges heard the testimony of eight or nine osteopaths and a comparable number of doctors of medicine regarding whether or not the Supreme Court in this state had been arbitrary and capricious in its decision to limit the practice of osteopathy. The plaintiffs pleaded that their rights under the 14th amendment to the Constitution of the United States had been violated in Kansas.

On November 16, 1948, a verdict was given, stating in part that "it is ordered and decreed that the prayer of the plaintiffs for injunctive relief be and the same is hereby denied, and the action is dismissed at the cost of the plaintiffs." The judgment and decree was signed by the three judges hearing the case.

At the same time they issued a preliminary statement entitled "Findings of Fact and Conclusions of Law." This document outlines various points around which the case was argued and among those the following statements may be found: "It is peculiarly within the province of the State of Kansas to classify and regulate the right to pursue a calling or profession having to do with the public health. The nature of the classification and the requisite qualifications for license to pursue a profession within such classification must largely depend upon the judgement of the State. The only limitation imposed upon the exercise of that power by the due process and equal protection clauses of the Constitution of the United States is that the classification shall not be arbitrary; shall bear some reasonable relationship to the legislative object, and shall not be discriminatory in its application and effect within the prescribed classification. If the required qualifications to pursue a calling or profession are obtainable by reasonable study and application, they are not arbitrary or unreasonable. . . .

"The fundamental difference in the scientific approach of the osteopathic and medical profession furnishes a valid basis for the classification made out by the challenged statute. . . .

"The classification, and the regulation based thereon, are not arbitrary or unreasonable; that the restrictions imposed upon each classification do not operate to deprive the osteopathic profession of due process or equal protection of the laws. The injunctive relief sought is therefore denied."

/s/ Orie L. Phillips
U. S. Circuit Judge
/s/ Walter A. Huxman
U. S. Circuit Judge
/s/ Alfred P. Murrah
U. S. Circuit Judge

It presumed that a detailed opinion from the court will be prepared, possibly within a month. When available, the JOURNAL will carry this information to the membership. In the meantime, the case probably is not closed at this point. Attorneys for the plaintiffs declared during the trial that the case would be appealed to the Supreme Court of the United States should this court find against them. If they are still of the same opinion, it may be some time before this question is finally determined. (1948)

A Tribute to Franklin D. Murphy, M.D.

In this issue, largely devoted to contributions from the faculty of the School of Medicine of the University of Kansas, it seems appropriate to pay tribute to Dean Franklin D. Murphy. Since his appointment to this position in July 1948, he has accomplished an unbelievable number of tasks. He has won the confidence of the medical profession and has begun a far-reaching program of public service.

In the span of a few months Dr. Murphy and other Kansas physicians developed the Kansas Plan, which has achieved not only national recognition in the lay press but has brought about the active cooperation of the Kansas Farm Bureau and the Kansas Medical Society. It has furthermore obtained a grant of some four million dollars for expansion of the School of Medicine.

It is noteworthy that Dr. Murphy's interests are not confined to the school. As a member of the Kansas Medical Society he has given his assistance to each project this organization pursues. He has spoken before most of the component medical societies. He has attended many committee meetings. He has co-operated in a real and personal way upon every occasion when his services were requested.

Dr. Murphy was appointed chairman of the Governor's Advisory Committee on Mental Institutions and has been a large influence in an effort now nearing success toward improving the mental hospitals in this state. He has spoken before national and regional meetings of the American Medical Association and before medical Auxiliaries and innumerable lay groups.

It is Dr. Murphy's philosophy that the University of Kansas School of Medicine must serve the people of this state. The school and the Kansas Medical Society have united their efforts toward the end that the entire medical profession may give the people of Kansas the finest medical care in the world.

The Kansas Medical Society is proud of the work that Dr. Murphy has accomplished and is happy to include the Medical School in its public service projects. The JOURNAL, speaking for the Society, wishes him many years of continuing success on ever widening planes, and pledges its support to Dr. Murphy, his Board of Regents and his faculty in the interest of the people of Kansas. (1949)

The Clinical Applications of Radioactive Isotopes in Small Hospitals

FRANK E. HOECKER, Ph.D., Lawrence and HOMER L. HIEBERT, M.D., Topeka

During the approximately five-year period in which artificially radioactive substances have been available in large quantities for clinical applications, their use has been confined almost entirely to the larger centers of population. The more or less routine use of radioactive iodine and radioactive phosphorus has, in many cases, been the natural outgrowth of early studies in research laboratories connected with large hospitals or medical schools. In these large institutions the necessary laboratory facilities and trained personnel are already available. On the other hand, such specialized facilities and staff are seldom available to the hospitals in small communities. As a consequence, the advantages of diagnosis or treatment based on the use of radioactive isotopes are not at this time generally accessible to the less densely populated areas of the country.

The writers, in close cooperation with the physicians and hospitals of the Topeka area, have undertaken to develop a program which makes these advantages available to the people of this community. In setting up this program, under somewhat less than ideal conditions so far as laboratory facilities and staff time are concerned, a number of problems have been encountered which might be typical of any attempt made under similar circumstances. It is our purpose to discuss these problems and to indicate what appear to be reasonable methods of overcoming certain limitations.

All applications of radioactive substances, whether in research, in industry or in medicine, are fraught with considerable danger, the actual degree being dependent upon the amount used, the particular material used and the purpose and manner of use. This is especially true in clinical applications because the exigencies of such uses may endanger not only the patient and the person who administers the material but also the hospital and community as well. These circumstances have exerted a severely restrictive influence on the spread of treatment and diagnosis by means of radioactive substances. These materials must, therefore, be used only with proper laboratory equipment and by specially trained individuals.

Nevertheless, in the presence of adequate equipment and in the hands of properly trained personnel, the application of carefully chosen radioactive isotopes for clinical purposes provides unique advantages not available through any other medium. However, the avoidance of danger to the patient imposes strict limitations on the choice of radioactive substances. The life of the substance in the body and the amount of energy liberated in the tissue must be carefully considered. Furthermore, the differential absorption of the radioisotope in the body must be known. The latter constitutes the most severe therapeutic limitation since it must be highly absorbed by the tissues to be treated and and absorbed only slightly or not at all by other tissues.

In effect, the above considerations limit the internal use of radioactive isotopes at present, both diagnostically and therapeutically, to only four or five. The most useful one at present is radioactive iodine, I^{131}. Perhaps second on the list comes radiophosphorus, P^{32}, while radiosodium and radiogold come probably third and fourth. Other substances are even more rarely used.

It would be a mistake to infer that either the diagnostic or therapeutic use of any of these substances is standardized. Neither the mode of administration, the amount administered, nor the technique of interpretation is yet reduced to a generally accepted procedure. Perhaps least of all is the equipment either dependable or standardized. The internal clinical applications of radioactive substances are now in a stage comparable to that of x-rays 40 years ago. Such uses are still in the research phase and require the expenditure of unexpectedly large amounts of time on the part of the technical staff.

It is, of course, well known that complete control over the use of radioactive isotopes is exercised by the United States Atomic Energy Commission. Permission to obtain these substances for administration to human beings is obtainable only by an institution, not by an individual, and then only when the commission is satisfied with respect to the possession by the hospital of adequate facilities and the availability of properly trained personnel. The matter of facilities can usually be taken care of by any hospital which is willing to assign laboratory space and spend a sum of from $3,000 to $5,000 for specialized equipment.

Trained personnel are not always so easily provided. The Atomic Energy Commission requires that the hospital appoint an isotopes committee composed of members of its staff. It should comprise an internist, a pathologist, a radiologist with training and experience in administration of radioactive isotopes, and a radiophysicist. At present the number of radiologists with the requisite training and experience is small, while

the number of radiophysicists who are able to devote a portion of their time to hospital work and are at the same time accessible to the hospital is extremely small.

The organization of the Topeka isotope program began in late 1950, when a small group of local physicians discussed with one of the writers (H.L.H.) the possibilities of bringing radioactive materials to the community. The undertaking seemed feasible provided that consultation services of a radiophysicist could be obtained.

This was solved through the University of Kansas which made available a certified radiophysicist (F.E.H.).

Laboratory space was offered by St. Francis Hospital and Stormont-Vail Hospitals. Space was immediately available in Vail Hospital and the laboratory was established there for the reason. The necessary funds for the purchase of equipment were provided through the cooperative efforts of the executive director and the trustees of Stormont-Vail Hospitals.

A number of interested physicians asked for a preparatory orientation course in the diagnostic and therapeutic uses of radioisotopes. The course, "The Medical Application of Radioactive Isotopes" (32 lecture hours), was arranged through the University of Kansas Extension Division, and was given by one of the writers (F.E.H.) to 25 enrolled physicians.

Our first isotope clinic was held in July, 1951. Diagnostic tracer studies with I^{131} were done on seven patients, and one patient in thyroid crisis was treated with I^{131}. Dr. Kenneth E. Corrigan, director of radiation research and in charge of the isotope laboratory in Harper Hospital, Detroit, Michigan, assisted with the studies and gave additional impetus to the program with illustrated lectures to the physicians.

It was indicated earlier that radioactive iodine, I^{131}, has at present wider application in clinical medicine than any other radioisotope. This follows in consequence of its almost ideal physical properties—a convenient half-life, the emission of beta particles which impart a localized tissue dose, and the emission of gamma rays which permit external measurements in vivo. It has also the rare biochemical property of almost perfect localization in the thyroid gland within a few hours after its administration.

It has been established that the measurement of the rate of uptake and the total uptake of I^{131} by the thyroid gland, together with excretion studies, yields diagnostic information which is more dependable than the measurement of the basal metabolic rate. This is unquestionably true in the case of uncooperative patients and children.

The therapeutic use of I^{131} in the control of hyperthyroidism appears to be the treatment of choice in selected cases. Complete or partial thyroidectomy through accurate control of dose can be performed without hospitalization of the patient.

For these and other reasons, our radioisotopes program at Topeka was initiated with the diagnostic use, and quickly expanded to include the therapeutic use of I^{131}.

The amount of information gained from these studies is, of course, a function of the amount of time devoted to the work. The writers have felt that detailed measurements of uptake in various portions of the thyroid yield diagnostic information well worth the additional time required. Careful surveys are, therefore, made on each patient four times during the first 24 hours by placing a shielded end-window Geiger counter in contact with the skin over the thyroid area. An indicating, computing rate meter, the Raychronometer, is used to determine the counting rate at each point of measurement. The resulting data furnish a clear picture of the rate of uptake in various portions of the gland. In addition to asymmetry of function, toxic adenomas, aberrant thyroid tissue, and other abnormalities are clearly revealed. Such information, not obtainable from the widely used distance-count method, is often of critical importance to the surgeon if surgical intervention is indicated.

Early research work on the diagnostic use of I^{131} almost invariably included measurement of the rate of excretion in the urine. There is little doubt of the diagnostic value of such measurements, but excretion measurements are, when performed by customary methods, exceedingly time consuming. The usual method is to assay a portion of each specimen, either by evaporating the sample to dryness or by direct counting of the wet sample. The time involved and the trouble of saving all excreted specimens have tended to discourage the making of excretion studies in routine clinical use.

Our conviction of the value of excretion studies has led to the development in our laboratory of a rapid, semi-automatic method of making the assays required by the excretion studies. The assay of all specimens excreted by 10 patients in 36 hours can now be performed by one person in a period of about four hours. The diagnostic value of the excretion studies is well worth this expenditure of time.

It should be borne in mind that this program was initiated with the objective of testing the feasibility of bringing the clinical advantages of the radioactive isotope method into community hospital practice. No attempt has been made to solicit cases nor to influence physicians in favor of this method. The number of cases accepted for diagnosis has been held to that which could be handled within limitations of a predetermined time and without sacrifice of completeness of study.

To date, eight monthly sessions have been held.

Fifty-eight radioactive iodine tracer studies have been made, and 18 therapeutic doses of I^{131} administered for thyrotoxicosis. In addition, two cases of polycythemia vera, one multiple myeloma, and one case of skeletal metastases have been treated with radioactive phosphorus.

It is our future aim to further expand the isotope laboratory to accommodate the increasing patient load and to include other radioactive materials as they become available. This, we believe, can be accomplished by: (1) substituting mechanical devices for technical assistance wherever possible; and (2) by training existing hospital personnel to do much of the routine work, including sample measurements, thus giving the radiophysicist and radiologist more time to analyze and to evaluate the results.

Finally, it is hoped that our experience may be of some benefit to other community medical centers interested in establishing a clinical isotope program. To these ends, Dr. Franklin D. Murphy, chancellor of the University of Kansas, has endorsed our project and pledged the continued support of the University of Kansas for technical assistance within the limits of its facilities. (1952)

Three and a Half Years Experience with a Bone Bank

J. F. LANCE, M.D., Wichita

We have had a bone bank in operation at St. Francis Hospital, Wichita, Kansas, for three and a half years now; and, although it is not practical or even advisable for most hospitals about the state to have such a facility available, it would seem wise for all physicians to be familiar with the technique and uses as well as the necessity and authority for a bone bank. It is with this thought in mind that we would like to report regarding our experience over the past three and a half years.

The necessity for additional bone for certain orthopedic operations has presented itself to surgeons on many occasions for as long as this type of surgery has been done. In certain patients, notably children, it is difficult or impossible to obtain amounts of bone to complete the operation in question by the usual means, i.e., with the aid of secondary operation on the patient himself or upon a bone donor, which is usually the father or mother of the patient. We have thus used homogenous bone for some time, but only for a short time have we had a method of preserving bone formerly discarded. Operations, such as spinal fusions for scoliosis or the filling of a large bone cyst, for example, present problems in which a large quantity of bone is necessary and may not be obtainable from the patient himself.

Although the use of homogenous bone was first reported as early as 1878, it was not until 1942 that Alberto Inclan of Havana, Cuba, reported on the use of a preserved bone graft in orthopedic surgery. Alan DeForest Smith of New York City employed bone refrigerated for 18 days at about plus 2° to plus 5° centigrade in 1942, but did not report this fact. It was not until 1945 that a bone bank was first used at the New York Orthopedic Hospital. At the onset, bone which was formerly discarded in many operations was placed in an ordinary refrigerator at plus 2° to plus 5° centigrade where it was kept for periods of up to three weeks. This was shortly changed to a freezer type storage at minus 20° to minus 30° centigrade, were it was found bone could be kept for an indefinite period of time and used with good results. Undoubtedly, the rapid advance in manufacture of deep freeze equipment has tended to give impetus to the present-day use of preserved homogenous bone grafts.

I might mention here another method of storing bone which could have been utilized, i.e., the placing of the bone to be preserved into an aqueous merthiolate solution. This bone may be used without undue complications. However, this method is much more complicated, requiring frequent changes of solution and handling of the bone. Also, it means introducing a foreign, toxic substance into the operative wound.

Late in 1949 a "deep freeze" was obtained at St. Francis Hospital, Wichita, Kansas, and on January 3, 1950, our first entry to the bone bank was made. It so happened that our first bone was obtained from a 16-year-old boy who had experienced a sudden, traumatic death. Bone from a cadaver, removed within a few hours after death under surgical aseptic conditions and placed in the freezer, can be utilized just as well as bone removed from a live donor and placed in the bank. Other bone for our bank has come from the following sources:

1. Cadaver-tibia, fibula, ilium.

2. Ribs from non-infected and benign thoracotomy cases.

3. Amputations—tibia, fibula, os calcis, astragalus, and metatarsals.

4. Ilium.

5. Clavicle.

6. Patella.

7. Ulna.

8. Boiled bone from any of the previously-mentioned sources.

In all of these cases, the bone saved in the bank represented bone which would formerly have been discarded. When bone is placed into the bank, which is maintained at about minus 20° centigrade, the following data are obtained: the donor's name, his age, his serology report, the name of the doctor supplying the bone, and the type of bone. Formerly we obtained the blood type and the Rh type; however, we, as well as other users of the bone bank, have found this information unnecessary. The bone is placed within a sterile jar, which is placed inside of another sterile jar. The bone is cultured in a brain broth preparation which is placed in an incubator for a period of not less than two weeks. Thanks to our laboratory and their careful checking of these cultures, we have yet to encounter our first case of postoperative infection following the use of bank bone. We have had to discard bone—yes—but we have never had an infection.

Upon withdrawing bone from the bank, the following data are entered on our records: the recipient's name, the type of operation being performed, and the date.

The bone obtained from the first donor is all gone now; however, there were several pieces used after being in the freezer for 18 months. The bone which had been in the freezer for 18 months was used with clinically as good a result as with any other bone used. This represents the successful use of bone stored longer than any other case reported to date.

On some operations, several bottles of bone have been used, and in other cases a portion of the bone from one bottle has been used, the remainder being recultured and returned to the bank. Every time a bottle of bone is opened and returned, it is recultured. The contents of one bottle, which incidentally was the first entry, was used on seven different operations. No apparent harm to the bone results from the thawing and refreezing procedure.

Number of entries	190
Sterile entries	155
Contaminated entries discarded	32
Contaminated entries boiled and used	3
Number of operations in which bone bank used	160

Bone from the bank has been used in a great variety of operations to make up this total of 160 operations. The following is a fairly complete list:

Filling of bone cysts	11 cases
Congenital pseudoarthrosis of tibia	6 cases
Construction of hip shelf	4 cases
Spinal fusion	103 cases
a. Scoliosis, 47 cases	
b. Spondylolisthesis, 27 cases	
c. Others, 29 cases	
Fractures	8 cases
a. Fresh	
b. Nonunion	
Arthrodesis of various joints	10 cases
Used in other hospitals	10 cases
Others	8 cases

Although other writers have proved autogenous bone to be superior to homogenous or bank bone, clinically the bone used for our bank has accomplished its intended function as well as autogenous bone grafts. It has been tolerated by the host tissue in all cases, and there have been no cases of slough or infection. We have been able to successfully complete certain procedures with ease that would have been impossible or done at great risk and difficulty without bank bone.

In conclusion, it can safely be said that the development of the bone bank is one of the most important advances in orthopedic surgery; however, it should be emphasized that the use of bank bone is not intended to replace the use of autogenous bone but is to serve as an adjunct in grafting when it is impossible or impractical to obtain enough bone from autogenous sources. (1953)

TO THE EDITOR—OF THE

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May, 1959

My Dear Successor:

Perhaps you will be searching the "old Journals" of our day in preparing for the Society's Bi-Centennial. I hope that if you are you may have some of the admiration for our efforts that we have developed for the pioneers of a century ago, since we have made our search through the Transactions and the Journal to prepare this Centennial volume. We have gained a better perspective of our predecessors, and some insight into the difficulties they faced and overcame.

We wonder that they did so much with so little—working without the many "essential" conveniences which we enjoy today. We wonder that, without knowledge of asepsis or antiseptics; without X-ray, electrocardiograms, antibiotics and laboratory procedures, they were able to diagnose and cure any diseases. And yet they did, making use of those facilities which were available. You will be impressed by our clumsy and ineffective procedures and medicines, though today we are convinced that we are far advanced.

It is futile to attempt to predict the conditions of medical practice 100 years hence, but there is one thing which was basic in 1859, in 1959, and I think will be in 2059—to listen to a patient's story and to examine him. Some have had the idea that this was unnecessary, substituting laboratory and X-ray studies and "miracle drugs", but it just doesn't work. A century ago they had to examine the patients; we have to; and so will you.

We have progressed from blood-letting to blood banks, and have learned a degree of control of some diseases which were former terrors (smallpox, typhoid, malaria, pernicious anemia, diabetes, and more recently poliomyelitis), but we are concerned now about others, including heart disease, arteriosclerosis, cancer, and arthritis. You may have learned the answers for our problems, but you will have others—and will also have your own new "miracle drugs" new forms of radiation, and goodness-knows-what else.

We have been impressed by the man-made satellites circling around our earth, and we are told that a couple of them will still be going in your time. Perhaps you will run across them in your space travels.

Please give our best wishes to the other members of your Editorial Board. As we have enjoyed our work for the Journal, I am sure that you will too.

Sincerely,

Orville R. Clark

Editor

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Fractures and GP's

Some Problems Encountered in Fractures Seen in Everyday Practice

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I am deeply grateful to you for the honor extended me to address the Kansas Medical Society. I shall endeavor to present to you, for your consideration, some problems in handling certain types of fractures, particularly fractures of the shaft of the long bones, Colles' fractures, certain types of fractures encountered in children, Pott's fracture with and without dislocation, and some other types seen in your everyday practices. I will also suggest to you the manner in which I have been able to deal with the different problems each presents.

The amount of time required for fractures to unite varies with the different bones involved. Therefore, in appraising a fracture from any standpoint, one must see more than the fracture itself. The time element required in certain number of weeks should and must be forgotten, for too often the surgeon, as well as the patient, thinks only in terms of six, eight or ten weeks. Most doctors have patience only to wait from one operation to another or from one application of the treatment he has selected for the patient to have time to get well. Too often we find ourselves lacking in that knowledge of common "horse sense" or, in this instance, "Orthopedic Instinct," and we are too prone to expect fractures to become united in four to six weeks. After that period of time, it is termined an "ununited fracture." The sooner we learn to forget the number of weeks required for a fracture to heal and cease thinking in terms of specified time, the sooner we will become better doctors in the treatment of fractures.

Remember that Tallyrand once said, "Be zealous; but don't be too damned zealous."

Presented at Annual Meeting of the Kansas Medical Society, Kansas City, May 6, 1958.

Again I would like to remind you of what Alonzo Clark said, "Don't treat your patients too much, let them get well if they can."

When one is called upon to treat a fracture of any kind he must first have the right conception of the manipulation that he expects to use, along with an adequate conception of the immobilization which he has in mind and thus be able, in the end, to direct all subsequent treatment of the patient to a successful recovery. This idea will certainly result in the successful treatment of any fracture that you may be called upon to treat and may avoid unnecessary operation.

A discussion of some of the difficulties encountered and ways in which they may be avoided or controlled; things to do and not to do, aimed at the physician in general practice.

Even under ideal conditions, there are many types of fractures that can and should be treated more successfully by certain internal fixation rather than simple manipulative procedures. We are all aware of the fact that most of us are too prone to want to do an open operation when, in all probability, the fracture can be treated successfully in the hands of a skilled manipulator by the so-called closed method. Always check carefully all x-rays and be sure of the fracture before and after reduction. I am reminded here of the feelings of a general practitioner who, on an occasion, remarked, "I was able to successfully treat fractures for over 40 years until, one day, a young upstart salesman came along and sold me some x-ray

equipment. Since then I have never been able to properly set a fracture." To this I have added—one must remember that the patient doesn't walk around on his x-rays.

One must naturally be possessed with a knowledge of bone surgery and must be in a position at all times to apply the additional sense of proper splinting and proper immobilization. All of this is based on the proper training necessary to apply the procedure one expects to use. Remember, it is not the splint but the man behind it.

Fractures are too individual, and the surgeon therefore must have at his command basic surgical principles, along with mechanical and other common sense ability in order to combat the many difficult, unseen and unexpected problems that may arise in any case. With the background of good mechanical sense, a familiarity of the proper principles of splinting, associated with good surgical training, one should, when required of him, be able to undertake the problem at hand, be it closed procedure or open operation, with more or less impunity.

With our present day knowledge of asepsis, surgical technique, and operative preparation one should not avoid an open operation if it be required. I am not unmindful of the fact that the general surgeon or practitioner not accustomed to doing bone surgery should be warned against attempting to operate fractures without a thorough knowledge of the procedure he is endeavoring to undertake.

I am sure, however, that a skillful technique will permit a trained operator to apply the method necessary in doing an open operation. The principle of sound fixation in fracture treatment is obtained in most cases by suitable traction and fixation.

Not infrequently, however, some type of internal fixation may be required, although the application of it should not be classified or recommended as a panacea for fracture treatment, but merely as a mechanical procedure often necessary in carrying out a principle of good fixation.

Fractures not properly reduced and certain types of comminuted and oblique fractures can be treated better, in many instances, with the fragments held in a secured and fixed position, by the certain internal fixations, combined with adequate external fixation of plaster or special splints.

There are no definite rules. In other words, one should use the method with which he is most familiar, and the technique which produces the best results in his own hands. Never treat an open reduction of any kind as a simple procedure. There is none in my experience which requires better judgment and more perfect technique. Do not be too prone to criticize unless you have tested the method in question. Mature judgment and the results of long experience are necessary to determine, without trial, which fracture will have to be opened for proper fixation and which may, or can be, reduced and maintained without an open operation.

Non-union occurs in some cases regardless of what is done, yet in a majority of cases it is due to improper fixation. Fixation is paramount and must be absolute and maintained over a sufficient period of time for union to occur.

The basis upon which all successful treatment of fractures has been founded is traction applied in some manner. If one elects the closed method for treatment of fractures of the shaft of the femora in a child, Russell traction should, in my opinion, be the treatment of choice except in the cases involving the extreme upper third of the femoral shaft. In this case, the overhead traction in which the limb is attached by Buck's extension to an overhead bar or frame, is desirable, with sufficient weight to overcome the shortening and angulation. In my opinion, this type of treatment has not received the general use it should.

It is my profound opinion that every general practitioner or surgeon treating fractures should have among his armamentarium a Russell traction outfit, a Thomas splint, and a Buck's extension equipment, and he should be well acquainted with their methods of application. They are simple, yet so effective. In children, their usefulness is unequaled, and they can be used in adult cases as well. The Thomas splint, the Bohler-Brauns splint and the Bryant traction are all worthwhile methods, especially in the treatment of fractures of the mid- and lower-shaft of the femora.

Colles' fractures have always been classified as simple fractures. Of this, I have never been convinced. I personally believe that these fractures are of the most severe type for a so-called simple fracture. They require as much manipulation and skill as one may be called upon to apply in the treatment of any fracture. They are simple only in differentiation from a compound fracture.

Pott's fractures of the ankle are likewise, in many instances, difficult to handle, particularly when associated with a severe dislocation. In most instances, this type of case requires certain internal fixation devices for successful treatment.

Fractures of the shaft of the forearm again present a most difficult type. In some instances, we can reduce these by closed reduction, by special traction device on a traction table, or by manipulation and cast. However, in some instances it is necessary to resort to open operation and internal fixation.

Fractures of the hip, namely, the intracapsular type, still present a difficult problem. I am inclined to follow the teachings of the late Kellog Speed. He classifies the intracapsular type fracture as an unsolved frac-

ture. Strides have been made towards solving its difficulties. Internal fixation gives the best results. Again it requires skill and certainly should not be attempted by an inexperienced operator.

Intertrochanteric fractures are an entirely different problem. Fortunately, the intertrochanteric is the most common. It is often looked upon as a fracture of the hip. This is not true. It is definitely a shaft fracture. Of the two, I frequently speak of them as the fortunate and unfortunate fractures. Obviously, fractures in the neck of the femora are unfortunate, while intertrochanteric fractures can be safely looked upon as a fortunate fracture. In many instances, this fracture can be successfully treated by a closed method of choice. In some cases, however, when resorting to operation, it avoids prolonged immobilization of the limb and bed rest.

Fractures of the humerus in the upper, middle and lower thirds can be treated successfully by the Caldwell method, or hanging cast, in most cases. The most common type of displacement with fractures of the mid shaft is lateral angulation just below the insertion of the deltoid and anterior angulation due to the bowstring effect of the triceps. The possibility of shortening can be controlled by the weight of the hanging cast. Therefore, in most instances, the closed reduction in this manner is the treatment of choice. Complications are less common in these closed methods than in the open methods which are sometimes necessary. For the first two weeks I have my patients sleep with a light weight attached to a wire hook incorporated into the elbow portion of the cast. Obviously, when up and about during the day the weight of the cast acts as the traction necessary for immobilization and fixation. If the fracture fails to unite, intramedullary nailing, and possibly bone grafting, is necessary.

Dr. Richard T. Hudson suggests the following "Don'ts" when using a hanging cast in treating fractures of the humerus:

Don't worry about some pain and crepitation the first week.

Don't worry that the fragments move.

Don't let the patient disturb the length of the support.

Don't apply too heavy a cast.

Don't neglect to see that the humerus hangs vertically.

Don't fail to make the patient ambulatory.

Don't fail to start circumduction exercises of the shoulder as soon as possible.

Don't fail to check with an x-ray after one week, with patient sitting or standing.

Don't expect the cast to reduce fractures of the surgical neck.

These methods, I hope, have helped to impress upon you the need for careful training, of the physician who assumes the responsibility for treatment of fractured bones. It is necessary, at times, to tell over and over again the same story, although our ideas may not always be in agreement. It is this difference in ideas and opinions that make for progress.

A drunk was walking along the curb with one foot on the sidewalk and the other in the gutter. A cop followed him for a couple of blocks, then caught up with him and said, "Come along, Buddy. I'll help you home. You're drunk." "Well thank God," said the drunk. "I thought I was crippled."

So in our general progress, the uses of metallic substances, developed during a period as recent as the past decade, play an important role in the operative fixation of fractures. These metallic substances include chromium, vanadium and vitallium and nickle steels.

There is probably no subject in the field of orthopedic surgery today so characterized by grave differences of opinion as the popularized operative applications of the different metallic gadgets for the operative fixation of fractures. A careful study of the literature on this subject covering the past two decades or more will familiarize one with the procedures which have been used and are used in many sections of the country. Personal discussion with many of the men who have been either for or against the uses of metallic substances has made it distinctly difficult to evaluate their uses.

It is my opinion that the suggestions here made will be found to be sound, logical and meet all of the basic mechanical requirements needed to restore fractures anatomically. If we remember that fractures which I have brought to your attention must be treated by those same principles which govern the treatment of fractures elsewhere; and too, if we remember that these injuries, serious as they sometimes are, can be greatly relieved or completely restored by the application of sound mechanical reasoning, a great deal of the apprehension felt by the surgeon and the patient can be entirely relieved.

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Transaminase*

Amounts in Cerebrospinal Fluid

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The level of glutamic oxaloacetic transaminase in the serum (S-GOT) of man has been well evaluated in recent years. The activity of the enzyme has been found to be elevated after acute myocardial infarction and hepatic cell necrosis.[1, 2, 3] This finding is of diagnostic and prognostic importance in these two conditions. The normal serum levels as established by Karmen, Wroblewski and LaDue through their spectrophotometric method[4] has been confirmed by many other investigators and found to range from 10 to 40 units.[1] Work with other enzymes, most notable of which are glutamic pyruvic transaminase (GPT)[5, 6] and lactic acid dehydrogenase (LDH),[7] is now in progress and appears to indicate promise of improved diagnostic methods.

As compared with the literature concerning serum glutamic oxaloacetic transaminase (S-GOT), very little has been published concerning the levels of this enzyme in the cerebral spinal fluid (CSF-GOT) of man. The normal range of activity of CSF-GOT has not been definitely established.

The brain contains the third largest amount of GOT per gram of dry weight of all body tissues. The heart and skeletal muscle contain more, and the liver slightly less of the enzyme.[8] In spite of this fact, most investigators find that there is little if any significant elevation of GOT in the serum of patients demonstrating central nervous system disease.

Sickert and Fleisher[9] found that of 52 patients with various neurologic disorders, only those with progressive muscular dystrophy, polymyositis and dermatomyositis showed elevations of GOT activity in the serum. Progressive muscular atrophy, myasthenia gravis, neuritis and nerve section were not associated with elevations of S-GOT activity. Unfortunately, CSF-GOT determinations were not reported in this series.

Chinsky[1] found four of five patients with cerebral vascular accidents had normal S-GOT levels. The fifth patient had a high S-GOT value and exhibited at autopsy an area of massive cerebral encephalomalacia. This patient had no abnormality of heart or liver tissue. Unfortunately, there were no determinations of the enzyme in the cerebral spinal fluid in these patients.

In a later report by Chinsky and Sherry,[10] 15 patients with acute cerebral vascular accidents were studied. In 13 of these the S-GOT was normal. The remaining 2 cases were the only ones to die and exhibited at autopsy massive areas of encephalomalacia.

A study of the level of transaminase found in cerebrospinal fluid in several diseases involving the central nervous system with a view of determining its prognostic value.

In both cases the S-GOT levels were elevated (64 and 570 units). Six patients had lumbar punctures 24 hours following the onset of their cerebral symptoms and values of 6, 13, 14, 16, 23 and 44 units were found in the spinal fluid. Serum assays revealed levels of 12, 33, 36, 37, 33 and 64 units respectively. The value of 44 in the cerebral spinal fluid in the patient with 64 units in the serum is considered to be an elevated value for the spinal fluid, as will be seen later.

The authors also evaluated a "control group" of eight patients and found values of 12 and 14 GOT units in the spinal fluid in two patients with grand mal epilepsy, 14 in a patient with obstructive jaundice, 15 with Bell's palsy, 20 with psychoneurosis, 22 with metastatic brain carcinoma, 36 with meningitis and 36 in a patient with a positive blood serology.

The latter two values will be considered to be elevated in the light of the report to follow. Chinsky and Sherry concluded that significant liberation of transaminase into the spinal fluid does not occur in the 24-hour period following a cerebral vascular accident.

According to LaDue, Wroblewski and Karmen[11] a "blood-brain barrier" to the transaminase enzyme exists so that with central nervous system necrosis there is little if any significant elevation of this enzyme in the blood. To explain the normal serum levels of transaminase in Chinsky's series, one may postulate the attractive, blood-brain barrier theory or consider the great dilution that may occur as the

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necrotic transaminase containing material is released from a relatively small volume of cerebral spinal fluid (120 cc) into a much larger volume of circulating blood (5,000 cc).

Neither theory, however, can explain the elevated serum levels found in the two patients with large areas of encephalomalacia. In these patients perhaps the blood-brain barrier threshold was exceeded, or probably the transaminase is absorbed directly into the circulation as it is after myocardial infarction, thereby giving a significant elevation of the enzyme in the serum.

In smaller cerebral infarcts, perhaps there is absorption of the enzyme into the spinal fluid and subsequently into the systemic circulation resulting only in minor elevations in the serum. Thus, abnormally high serum levels will not be reached due to the dilution factor previously hypothesized. Elevated levels in the CSF exist no matter which explanation is accepted.

In a report by Wakim and Fleisher[12] on the effects of experimental cerebral infarction on transaminase activity in spinal fluid, serum and infarcted tissue, it was found that injecting vinyl acetate into the internal carotid artery of dogs leads invariably to increased activity of GOT in the cerebral spinal fluid (average 733 per cent of pre-infarction values). A peak activity is obtained in the spinal fluid at 100 hours after infarction. After this time the transaminase activity gradually decreases but remains above pre-infarction levels as long as two weeks. The level of CSF-GOT was proportional to the size of the infarct. Usually a relatively slight increase of GOT was found in the serum (average 110 per cent of pre-infarction values). These values, however, still remained well within normal range. Although elevations of the transaminase enzyme in the spinal fluid were constant findings, in the serum they were quite inconstant. The serum level was not proportional to the severity and extent of the infarct as is the level in the spinal fluid. The elevations of this enzyme in the spinal fluid always preceded any rise in the serum.

Analysis of the infarcted brain tissue revealed a loss of over 80 per cent of its original transaminase content, a finding quite similar to that produced after experimental myocardial infarction.[3, 5]

Wakim and Fleisher[12] found that GOT activity in the cerebral spinal fluid of dogs averaged slightly more than half that in the serum. Green et al.[13] came to a similar conclusion in their study of normal human controls.

Thus far, the effects of elevations of CSF-GOT on serum levels have been discussed. The question now arises as to what effects, if any, elevations of S-GOT have on CSF-GOT. To answer this the report of Fleisher and Wakim[14] is of value. Injections of transaminase concentrates into the cerebral spinal fluid significantly increased the level in this fluid as expected but did not alter the level in the serum. When experimental carbon tetrachloride poisoning occurred in dogs, resulting in hepatocellular necrosis, greatly increased elevations of both GOT and GPT in the serum occurred. However, only slight increases in the cerebral spinal fluid were noted.

The conclusion of these investigators was that little, if any, transfer of GOT or GPT occurs between serum and cerebral spinal fluid. This conclusion substantiates the blood-brain barrier theory of LaDue, Wroblewsky and Karmen.[11]

In order to determine the effect of elevations of S-GOT on CSF-GOT activity, a patient suffering from infectious hepatitis was studied. Simultaneous venepuncture and lumbar puncture were done. A level of 1,500 units GOT was found in the serum, but only 9 units in the spinal fluid could be detected. This value of 9 is well within the normal range for GOT in the cerebral spinal fluid. This finding substantiates the "blood-brain barrier" theory. Incidentally, this patient's urine contained only 1 GOT unit at the time the above procedures were done. This is in accordance with Chinsky's findings that the bulk of GOT is not excreted in the urine.

It is the purpose of the following report to establish the normal range of CSF-GOT values in man, and because a blood-brain barrier appears to exist and the brain being so rich in transaminase, it is felt that determinations of this enzyme in the spinal fluid rather than in the serum would be a more sensitive index of central nervous system necrosis, as has been established experimentally by the work of Wakim and Fleisher.[12] Various neurological disorders will be considered with special reference to central nervous system disease, especially cerebral vascular accidents.

Materials and Methods

The method of determination of GOT is a colorimetric one devised by Reitman and Frankel.[15] All reagents were supplied by the Sigma Chemical Company.* It is not the purpose of this report to describe this method in detail. The reaction involving aspartic acid and alpha-ketoglutaric acid was carried out at 40° C. incubation using a 0.2 ml. sample of the material to be tested. The oxaloacetic acid formed was reacted with 2-4 dinitro-phenylhydrazine to form a hydrazone complex, the color of which deepened

* The details of the procedure may be obtained by writing this company (3500 DeKalb Street, St. Louis, Missiouri). Request: Technical Bulletin No. 505, March 1957, "A Simplified Method for the Determination of Serum Transaminase."

with the addition of 0.4 N. sodium hydroxide. A reading was obtained in the Coleman Junior Spectrophotometer at 505 mμ. A control was used with each specimen determination as was suggested by Reitman and Frankel. Cerebral spinal fluid values were determined by exactly the same procedure as were those of the sera. The sera and spinal fluids were sent to the laboratory by the house staff of the St. Louis City Hospital for routine analysis. All spinal fluids were centrifuged and thereby separated from any cells present, prior to determination. This was done to avoid false high readings caused by the red cells which are rich in transaminase. For this reason no xanthochromic fluid was accepted for assay. Spinal fluid samples were refrigerated immediately for analysis a few days later.

Two hundred seventy-one spinal fluid determinations were made on 265 patients. These were divided into two major groups:

1. Those patients considered not to have neurological disease, herein called the normal group.
2. Those patients considered to have neurological disease, herein called the neurological disease group.

Each patient was carefully evaluated before being classified in either of these groups. Both groups were subdivided into two separate classes as follows:

1. The Normal Group—175 cases and determinations:
   a. Operating room patients 133
   b. Ward patients found not to have central nervous system disease 42
2. The Neurological Group—96 determinations, 90 cases:
   a. Cerebral vascular accident class 27 determinations 24 patients
   b. Non-cerebral vascular accident class ..... 69 determinations 66 patients

Results

Samples from 133 control cases were taken in the operating room at the time of lumbar puncture just prior to the injection of spinal anesthesia. Values ranged from 0 to 39 units with 90 per cent of them falling within a range of 5 to 25 units. One value of 58 units was not used in this statistical analysis since it was found to be far out of range with the rest of the group. The mean for this group was 14.0 units with a standard deviation of 6.6 units. Taking twice this deviation, the range from the control patients was calculated to be from 0.8 to 27.2 units.

Also within the control group were 42 patients from the wards considered to be free of central nervous system disease. Lumbar punctures from these patients showed a range of GOT activity from 0 to 24 units with 80 per cent of them falling between 5 to 19 units. The mean was calculated to be 13.1 with a standard deviation of 5.3. Twice this deviation would be 10.6 units. When using this value for determination of the range of this group, 2.5 to 23.7 was found.

As observed, there is no statistical difference between these two normal subgroups. Thus, one may combine both to calculate the total mean and normal range. For the mean 13.8 was found with a standard deviation of 6.3. The normal range for CSF-GOT would be 1.2 to 26.4 or approximately 1 to 25 units.

Within the neurological disease group are patients with cerebral vascular accidents. Twenty-seven determinations were made on 24 patients. One patient had four separate CSF-GOT determinations over a period of two weeks at roughly four-day intervals. These values were 18, 15, 11 and 15 units. Taking 25 units as the upper limit of normal as determined above in the control group, one can see that at no time was an elevation observed in this patient. The remaining 23 patients had one lumbar puncture each. Their values and time intervals (i.e., time of onset of symptoms to the time of lumbar puncture) is seen in Table 1.

TABLE 1

CSF-GOT VALUES ON CEREBRAL VASCULAR ACCIDENT PATIENTS

Case No.	*CSF-GOT*	*Time Interval*
1	23	6 hours
2	14	24 hours
3	29	24 hours
4	25	36 hours
5	30	2 days
6	13	3 days
7	11	3 days
8	9	3 days
9	13	3 days
10	38	3 days
11	13	4 days
12	33	7 days
13	33	7 days
14	16	10 days
15	18	10 days
16	35	14 days
17	13	3 years
18	4	Unknown
19	32	Unknown
20	15	Unknown
21	23	Unknown
22	13	Unknown
23	19	Unknown
24	18, 15, 11, 15 on same patient at 4-day intervals	

From the data presented in Table 1 there seems to be no relationship between the height of the GOT value and the time interval between the onset of cerebral symptoms and lumbar puncture. The 27 values, which include the four determinations on a single patient, range from 4 to 38 units with 85 per cent of them falling within a 10 to 34 range. The mean was found to be 19.7 units with a standard deviation of 9.0 units. The range was from 1.7 to 37.7.

In only eight of these 27 values, or 30 per cent were the CSF-GOT levels considered elevated (i.e., over 25 units). There is considerable overlap with the normal range even though the mean value is 6 units higher than the normal. There does not appear to be a significant difference with which to draw clinical conclusions in this series.

In Table 2 various central system disorders other than cerebral vascular accidents are shown. These consist of 69 determinations on 66 patients. There are 28 disease entities illustrated, the first eight of which contain more than 1 patient.

The values in this series range between 0 and 44 with almost 80 per cent of them falling within a range of 5 to 25 units. There were 6 values of 45 or above which were not included in this statistical analysis, as it is felt that these were too high to contribute to a true range in this series. The mean was calculated

TABLE 2

CSF-GOT VALUES ON PATIENTS WITH VARIOUS CENTRAL NERVOUS SYSTEM DISEASES OTHER THAN CEREBRAL VASCULAR ACCIDENTS

Diseases	*No. Cases*	*GOT Units*
1. Grand mal epilepsy	15	43, 38, 32, 24, 21, 20, 19, 15, 14, 13, 9, 8, 7, 7, 7
2. Central nervous system lues	10	25, 24, 21, 21, 13, 12, 9, 4, 0
One patient had 32 units which fell to 14 following adequate penicillin therapy over 2-week period.		
3. Schizophrenia	5	29, 18, 12, 10, 9
4. Chronic brain syndrome due to cerebral arteriosclerosis	4	16, 13, 11, 2
5. Parkinson's disease	4	43, 15, 21, 1
6. Hypertensive encephalopathy	2	18, 14
7. Undiagnosed central nervous system disease	3	50, 20, 13
One week following the determination of 50 units on a patient, a repeat lumbar puncture revealed a value of 45.		
8. Cerebral atrophy	4	60, 14, 13, 9
9. Cerebral cryptococcosis		84-10 days 115
10. Toxoplasmosis		73
11. Spinal cord tumor		41
12. Heat stroke		36
13. Delirium tremens		19
14. Menier's syndrome		16
15. Tic doloreau		15
16. Brain contusion		15
17. Diabetic neuropathy		14
18. Frontal skull fracture		12
19. Tuberculous meningitis		10
20. Subarachnoid hemorrhage		8
21. Intracerebral hematoma		8
22. Functional hypoglycemia		8
23. Basilar artery insufficiency		8
24. Encephalomalacia		8
25. Cerebellar atrophy		8
26. Acute poliomyelitis		7
27. Aseptic meningitis		6
28. Spinal cord degeneration		4

to be 15.5 with a standard deviation of 10.2 units. When using twice this deviation to determine the range, it was found to be 15.5 ± 20.6 or –5.1 to 36.1. Since no negative values may exist, 0 to 35 would be an approximate range for this abnormal group. This range overlaps considerably with the normal and is only 10 units higher than the upper limit of normal. Even the mean value of 15.5 as compared with that of the normal mean of 13.8 does not appear to show a statistically significant difference upon which to base clinical conclusions.

The 6 values above 45 units on 4 patients alluded to above and which were not included in the statistical analysis, deserve further comment. The patient with toxoplasmosis with a value of 73 had only one determination whereas the patient with cryptococcosis had 2 separate ones at 10-day intervals (values 84 and 115 units) during which time his course became progressively worse. The patient with undiagnosed disease of the central nervous system had 2 separate determinations (values 50 and 45 units) at one-week intervals. This patient was thought to be hysterical. The patient with the diagnosis of cerebral atrophy was thought to have Alzheimer's disease. The reason for the disproportionately high values of GOT in the 4 patients is open to speculation.

In all the cerebral spinal fluid samples so far discussed, no relationship between the protein level and the transaminase values could be found.

Discussion

When considering the normal range of CSF-GOT activity, a standard of reference must be used in order for these values to have meaning. The reference standard to be utilized shall be the familiar normal S-GOT mean and range.

In our laboratory the mean value for S-GOT is 21.2 units with a standard deviation of 8.5. The normal range, therefore (using twice the deviation), is 4.2 to 38.2. This range approximates that noted in the literature. In order for the reference standard to be valid the material and methods used for serum transaminase determinations must be exactly the same as that used for spinal fluid. This was done in the present series and that of Green and associates.[13]

The normal CSF-GOT range as established by the above authors in 15 patients was found to be 2 to 7 units with a mean of 5.0. These values are much lower than the 1 to 25 range (13.8 mean) determined in our series. The serum GOT range of 10 to 20 units used as a reference standard by Green[13] et al. is also much lower than that quoted in the literature and in our series.

Since the present series consists of a relatively large number of determinations and the serum values are consistent with that of the literature, it is felt that the range of 1 to 25 units is an accurate reflection of the CSF-GOT activity in normal individuals.

There is some contradiction between the data presented in our group of cerebral vascular accident patients and those in the available literature. In the present series only 8 out of 27 values were considered elevated (i.e., over 25 units), whereas in the series of Green and associates[13] 7 out of 11 patients showed significant changes in CSF-GOT activity.

In 1 patient no rise in GOT values was found in the present series after 4 separate determinations done at about four-day intervals immediately following his cardiovascular accident. In 1 of Green's patients, 5 determinations over approximately the same time interval showed a steady rise in CSF-GOT activity.

From the data in the present series it is thought that no relationship exists between the height of the GOT value and the time interval between onset of symptoms and lumbar puncture. This lack of correlation between time and height of CSF-GOT levels was not found in the series of Green and associates. On the contrary, their work showed a steady rise in activity over a two-week period, a finding consistent with that found experimentally by Wakin and Fleisher. However, these investigatiors found, in a more recent work, that the degree of rise in spinal fluid transaminase in the patient suffering from cardiovascular accident is much less pronounced and inconstant than that shown in their experimental work.

The range of activity in the cerebral vascular accident group is approximately 2 to 38 units. This range demonstrates considerable overlap with that of the normal and, therefore, is of little clinical significance. A mean difference of 6 units is also probably of little statistical difference.

In the 69 determinations on 66 patients with various central nervous system disorders there is a wide range of variation within each disease category and also between categories. Thus little clinical significance can be ascribed to these values except the 2 cases with cryptococcosis and toxoplasmosis where values were exceptionally high. One patient with heat stroke and another with spinal cord tumor showed elevations. Three out of 15 cases with epilepsy of the grand mal type showed elevations above 25 units. One out of 4 in each of the Parkinson's disease and cerebral atrophy groups showed elevations.

The total range of activity in these groups as compared to the normal is apparently not clinically significant because considerable overlap exists. There is no statistically significant difference when comparing the mean in each group (15.5 for the former and 13.8 for the latter).

In the report of Fleisher and associates[16] it was demonstrated that elevations of both GOT and LDH can occur in a number of neurologic diseases. Significant increases in GOT were found in both serum and spinal fluid of patients with cerebral vascular disease, head injury, degenerative disease of the central nervous system and convulsive disorders. In the latter 3 conditions, LDH was found to be higher. In the brain tumor group only S-GOT was significantly increased.

Summary

The value of S-GOT determinations in myocardial infarction and acute liver disease has been well established in recent years. It is felt by us that the determination of this enzyme in certain central nervous system disorders would be of value as a diagnostic measure. A review of the literature on this subject is presented.

Before a value of GOT in the CSF can be interpreted as being elevated, a normal range must be established. This has been done with lumbar punctures on 175 patients found not to have central nervous system, hepatic or myocardial disease. The method used for the determination of GOT in the spinal fluid or serum is a colorimetric one devised by Reitman and Frankel. In our laboratory this method has been proven clinically to be as accurate as the original Karmen method. The Reitman-Frankel procedure is less tedious, expensive and time-consuming than that of Karmen. The normal range of CSF-GOT was found to be 1 to 25 units with a mean of 13.8. The normal range for this enzyme in the serum using the Reitman-Frankel procedure is between 5 and 40 units with a mean of 21.2.

The question arose as to whether increases of GOT enzymatic activity in the cerebral spinal fluid would occur after acute cerebral vascular accident in man as it does in the serum after acute myocardial infarction or hepatic necrosis since all three organs contain large quantities of this enzyme.

Only 8 of 27 determinations (30 per cent) of CSF-GOT on patients with cerebral vascular accidents were above 25 units. There was only a 6-unit increase in the mean of this group as compared to the normal. Considerable overlap existed between both groups so that slight elevations of GOT activity occur after cerebral vascular accidents but not enough to be clinically significant. It appears that the production of experimental cerebral infarcts results in relatively higher values as compared to those seen clinically—a conclusion already established by Fleisher and associates.

In the group consisting of various neurological disorders, wide variations were found within each disease category, most of which were within the normal range. The highest elevations were found in a patient with cryptococcosis and one with toxoplasmosis.

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Mental Health Clinic

"—The First Cooperative Endeavor of the State and Community" of This Type

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"Kansas ranks third from the bottom among states in the amount of professional help available in state institutions."

"Kansas ranks first. APA standards call for one physician for over thirty patients hospitalized. Kansas mental hospitals have one-and-a-half for every thirty."

These comments of the press reflect widely known facts concerning the advancement in the care of the mentally ill in Kansas over the past decade. Since 1948 stories of the changes in the state mental institutions have appeared throughout most of the country. This change may be observed at other levels. A renewed interest in help for emotional ills has shown itself not only in our state hospitals, but also at the community level. Perhaps the community outlook has not yet had the widespread publicity that the other advances have had, but it is not as old. One of the brighter beams of this new light on mental health is the topic I want to discuss here—the Community Health Clinic. To give you a picture of this program and the part played by our state hospitals, I shall describe the first cooperative endeavor of the state and community, the Riley County Mental Health Center in Manhattan, Kansas.

November 19, 1956, was the date of the official opening of the center, but this was also the date of the end of a phase of planning. Six years of work and many ideas had gone into making this "official opening date" possible. These pioneer attempts to do new things were not without hardships and disappointment.

The County Mental Health Association began a long process of community education with films, talks, and various group meetings, helping the community to understand their mental health needs and how such a center would help fill these needs. Community organizations had to be contacted for moral and financial support, committees and boards had to be organized, goals had to be set. Prevention and treatment of mental illness headed the list of these goals. Community education and planning for better mental health, also on this list, were begun six years before November 19, 1956. The community felt, if these goals were met, that the crippling and severe psychiatric disorders could be prevented, that many people could be kept in society and out of mental hospitals, and that the cost of mental illness could thus be reduced. In order to achieve its end, the community program called for a professional psychiatric team—psychiatrist, psychologist, and social worker—to be made available at the local level. The sources of income necessary to embark on such a course were:

A summary of the difficulties of establishing this first cooperative mental health clinic, and the ways in which they were overcome, together with a summary of the numerous services offered, and a look at the value it has for the community.

(1) The County Department of Social Welfare, (2) The State Board of Health, (3) Estimate of Fees, (4) Voluntary Contributions.

With this groundwork laid, a full time psychiatric social worker was employed as administrator and the center was opened in the county hospital. The location was later changed to a centrally located suite of offices in the downtown area. This change of location resulted in a definite change of community attitude toward the center. The center ceased to be a child or arm of the hospital and assumed its own identity. With this change came an increase of referrals, especially from community agencies and individuals themselves.

One of the unique features of the Mental Health Center is the type of cooperation that exists with the state and especially the state hospital system and Topeka State Hospital. The Center was the first such venture in this state and perhaps in the nation. For the first time, a state hospital loaned its staff to a county to act as staff on the local community level. Difficulties arose early because there were no specific laws authorizing such a loan. This cooperation was thus ended and for a time the Center was able to get some consultation on a part time basis from other sources, but this situation proved to be unsatisfactory and again the Center was without psychiatric help.

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Presented at Psychiatric Meeting in Kansas City on May 5, 1957.

Two laws were then passed by the Legislature which, (1) gave permission for the State Department of Institutions to help set up such a center—in other words, to officially authorize the loan of staff of Topeka State Hospital, and (2), authorized the City-County Board of Health to levy a quarter mill tax for the support of such a Center. In July, 1957, the Topeka State Hospital sent a psychologist and two psychiatrists to Manhattan under these new laws.

At present, the Mental Health Center has been in operation for one-and-one-half years, providing a wide variety of professional services to individuals, families, agencies, and the community at large. There are no residency requirements for eligibility for these services and the fees are based on the person's ability to pay.

The services offered by the Center include the following:

A. Screening all types of psychological and emotional, family and individual problems—done by the psychiatric social worker.

B. Evaluation of psychological problems of adults and children—done by the entire professional team.

C. Psychological testing related to problems of evaluation, learning, and job placement.

D. Child guidance to parents having difficulty with children's social adjustment, school development, emotional disturbances, mental retardation, and physical handicaps.

E. Assistance with emotionally disturbed children.

F. Marital counseling.

G. Psychotherapy and case work for emotional disturbances of adults.

H. Counseling services to families of mentally ill persons concerning problems of planning for hospitalization and adjusting themselves to the changes during and following a patient's hospitalization.

I. Follow-up counseling services and treatment for patients returning from psychiatric hospitalization to assist them in a smoother return to family, friends, and community life, when further psychiatric care is recommended.

J. Community educational service—talks and seminars on various phases of mental illness and health to agencies and groups in the community.

K. Consultation with professional persons or agencies, such as ministers, teachers, and employers, concerning the mental health aspects of their work.

L. Community planning—participation with various community groups concerned with efforts to meet better the problems of mental health on a broader scale.

Throughout this paper, I have been referring to a mental health center, instead of a clinic. This name was chosen because of these latter services, to indicate that more than clinical services are available, that this center is indeed for the mental health of the community.

Earlier I mentioned the state and community cooperation in this Center. Today a staff from Topeka State Hospital spends one day a week at the Center. Their time is spent in testing, evaluating, consulting, and treating individual and community mental health problems. There is a close liaison with the community's doctors who refer many cases to the Center. This close working relationship has been expanded to include many community agencies. In addition to physicians, referrals have come from family members and individuals themselves, the clergy, the schools, and health and welfare agencies.

This community cooperation has resulted in the first year in 94 new cases being opened for service at the Center. Seventy of these were closed within the first year. Since mental illness rarely if ever affects only the individual, but also family members and associates, it was estimated that these services to these 94 directly or indirectly affected the lives of over 360 people. An average of twenty hours a month was devoted to community education. As the second year progresses, these figures have continued to increase.

What does this activity in Riley County mean for the mental health of that area, the state hospitals, and Kansas? Has this new approach to an old problem answered any questions? Yes, I think it has. Since professional psychiatric help is now available at the county level, early treatment and prevention of mental illness has become possible.

What about the community? Will the state have to continue to fill staff posts on a part time basis? I think the answer is that it will not be necessary. As the community realizes how such a center is able to fill its mental health needs, the importance of having a full time psychiatrist in the community will become clear. This community has become aware in the past year of the need for such services. Their willingness to meet these needs has increased with their awareness.

With the necessary laws passed and an example set, a stronger light on one of the approaches to mental health has been lit. One more way for communities to deal with their problems in mental illness has become apparent.

The Riley County Mental Health Center in Manhattan has now been in operation for almost two years. It took a number of years to prepare for such a Center and its growth has not been easy. In a unique way, the state and state hospital have had an important role in assisting this center. This method of working together can now, by law, be used elsewhere. Kansas has made headlines in the past decade with the changes in her mental institutions. This activity in Riley County is one of the signs that these changes can continue on other levels.

School Health

The Physician's Role in Educational Activities in Kansas

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Most of the physician's life work is relegated to the diagnosis and treatment of disease. However, in dealing with children, both in the office and in the community, the physician must and does assume responsibility for maintenance and protection of the health of the child. This maintenance and protection of the health of the child is a concern of every practicing physician as well as of educators, public health workers, and dentists. Each profession has its role. The results of the services of each profession become increasingly effective as each person assumes his responsibility along with the parent in protecting the child's health and well being.

We in Kansas, then, turn to a team-work type of activity in the field of school health. We include parents, teachers, physicians, dentists, nurses, and representatives of voluntary health and civic organizations, working together as a big team to foster improved activities in school health.

This team coordinates its activities in the community, develops mutual understanding between the professions, differentiates responsibilities of various individuals on the team, recognizes local needs, and develops procedures to meet them with local resources.

Reflecting casually about this subject, the physician might limit his thoughts to the physical examination or the health appraisal of the child and to the administration of prophylactic immunizations. Nothing could be farther from reality. These activities are only a minute part of the total field of school health.

What Is a School Health Program?

The school health program is divided, on theoretical grounds, into three general overlapping areas: (1) health instruction, (2) healthful environment, and (3) health services.

A. *Health instruction* is primarily the educator's responsibility. However, the physician's role should become that of the consultant. He should advise the educator on health subjects to be taught, the validity of sources, and the accuracy of subject matter, as well as on the timeliness of health and medical information. Physicians, hospital personnel, and community health workers are used as teaching aids in schools.

B. The second large sub-division of such a program is that of *healthful school environment*. Here the responsibility is primarily that of educators, but it is shared by the Health Department. The latter agency acts under the existing law, local and state. Again, the local practicing physician can serve as a consultant in this area. Certainly he needs to know the scope of health environment in the schools. The more obvious aspects of a physical environment concern adequacy of lighting, cleanliness of rooms and of lavatory facilities, a program for preventing infectious disease, custodial care, physical and mental health of teachers, safety of school children on the playground, safe playground equipment, protection of the child going to and from school, and adjustment of school activities to meet the needs of the child, not only the healthy one but the handicapped one also.

C. When considering *health services* in the school, the physician becomes vitally interested as he is often forced to participate in this activity. He has the major responsibility here especially, and almost totally is the responsibility his in the realm of diagnosis and treatment of illness found in school children. He cannot perform this function alone, without the cooperation of other members of the team. For maximum effectiveness, each profession must recognize the abilities of the others and be willing to allow them to perform their share of the work. There are several important divisions of school health services:

1. The physical educational program and athletics
2. Emergency care of illnesses and injuries on the school premises
3. Control of communicable disease
4. Health appraisal and screening procedures
5. Recognition of health needs of the child and a follow-up program designed to supply these needs.

It is obvious, then, that the physician must be a member of the team in the field of direct health services. It is also obvious that other members of the team must be present and functioning for an adequate program in health services.

Each child in Kansas should have a complete medical appraisal to determine his physical, mental, and emotional status at the onset of his schooling. He should also be given the benefit of repeated and periodic screening procedures such as visual and hearing tests. He should have good, professionally guided and continued appraisal by educators on the adequacy

of his performance. Given this knowledge, the educator can better understand the total health of the child, his behavior in the classroom, and his success or failure in learning. The educator alone is not qualified to complete this appraisal but must act under the guidance of professional personnel. Here, then, comes an important conclusion: that the physician's portion of this responsibility is best assumed by the child's own personal physician in his own office, at periodic intervals, with knowledge of the adequacy of the child's functioning in the classroom before him. For the best service to this child, there must be excellent liaison between the educator and the physician. Here the parent acts as a carrier of information. The teacher's knowledge of the child's performance should be transferred directly to the physician. Results of various screening procedures in the school and information on the performance of the child in athletics and physical education, as well as in the classroom, should be in the hands of the physician at the time of the health appraisal examination.

To allow a child to get the most out of his physical education program, and to prevent injury, the advice of physicians is essential. This advice is best given by the pupil's own physician.

In the handing of emergencies, such as accidents on the schoolgrounds, headaches, sudden elevation of temperature, rashes, incidents, etc., the physician must be placed in the role of advisor in planning standing orders to be followed by educators in each eventuality. He should instruct faculty members as to their role in caring for an acutely ill child until a physician can be summoned. A set of standard orders and procedures for the handling of these emergencies, delineated by the practicing physician, should be in the hands of the school faculty.

In this same vein, in communicable disease control, the physician has a responsibility to inform teachers of infectious diseases that he sees in his practice, to set up procedures for handling these diseases in school, and to advise control measures to be taken by the school.

In the care and education of the physically and mentally handicapped child, the physician assumes a major role. The limitation of this child to learn, whether physical or mental, is not an educational responsibility but must be determined medically.

The reader should be impressed with the broadness in scope of a school health program and with the necessity for having a practicing physician on the team working toward better health for the individual school child.

Present Status of School Health in Kansas

Recent medical activities in the field of school health, at the *state level*, began in early 1956 with the formation of a Committee on School Health by the Kansas Medical Society. This committee has since participated in many activities. It has attempted to work through county medical societies to get the local physician interested in his own school health situation. It has acted as an advisory group to state agencies and educators. Members of the committee have participated in educational activities for teachers and were instrumental in the formation of a Kansas School Health Advisory Council.

The Kansas School Health Advisory Council was formed in the fall of 1958 to promote and advise local communities and state agencies in the field of school health activities. It is composed of some 30-odd organizations, spearheaded by the Kansas Medical Society, the State Department of Education, State Board of Health, Kansas Teachers' Association, Kansas State Dental Association, Kansas State Nurses' Association, and the Parent-Teacher Association. The organization is composed of specialists in this field, qualified to advise educators, as well as physicians working locally. This is one great step forward to coordinate state activities in school health and to stimulate local improved health conditions for the child in school.

For years, the Kansas State Board of Health has been holding workshops in school health in communities throughout the state. These have been community undertakings with outside consultants acting as instructors and guidance personnel.

For 10 years postgraduate courses have been held in the field of school health at the School of Education of the University of Kansas. These postgraduate courses have been attended by physicians as well as by educators and school health nurses. The State Department of Education is now attempting to broaden its work in the field of school health. Many independent civic and service organizations have been working in their own fields in this program. A few of these might be mentioned: The Kansas Tuberculosis and Health Association, the Kansas Heart Association, the National Foundation, mental hygiene organizations, etc.

When one analyzes the number of people working toward a common goal, that of improving the health of the child in school, and the amount of work done by the various agencies, one gathers the feeling that the physician, especially the local physician, could do a little more work in this field.

What is the *local situation* as regards school health programs? Let us consider two general divisions of school health programs at the local level: the larger school systems and the rural school systems. Much work has been done in the larger educational systems. In most instances, recent advances have been spearheaded by interested educators. They

realize the importance of healthful living conditions for the child in school, the importance of adequate education in the field of personal health, hygiene, and physical education, and the importance of knowledge of the pupil's limitations and medical condition.

A few specific school systems might be mentioned here. The Lawrence school system has a well coordinated school health program with a School Health Council functioning. Olathe is making inroads into community organization for school health. Wichita, for some time, has had a good, well organized school health and counseling program. Topeka recently had a school health survey by a physician, a specialist in school health, and is making progress toward an organized school health program. Community organized school health programs are also getting underway in other areas of Kansas.

The problems of a large school system are materially different from those of a small school system. In large schools one has the problem of loss of identity of the individual pupil because of masses of children under one roof. The emotional development of the child in a large school population is entirely different from that of a child in a small school situation. When one considers emotional health, one comes to the conclusion quickly that in smaller schools it is easier to maintain the worth of the individual; the teacher-pupil relationship is closer and there is usually a more healthful emotional environment.

The problem of health education, however, is much greater in smaller school systems.

In large school systems the problem of over-crowding (because of the trend of young families to move to the city or to the more populous areas) has become acute. Building programs in most of the larger school systems of the state are proceeding at a rapid rate. One wonders if adequate consideration is given by local Boards of Education to the health needs of the child in the building of a school. Is adequate consideration given to the playground area? To construction of a health room and health service area? Are lavatory facilities adequate? Are lighting facilities good? Is health counseling requested in the development of plans for building a new school?

Little is known about the total school health programs of *rural school systems*. The majority of children receiving education in Kansas fall into this group. The State Board of Health recently released a preliminary report on school inspections made by the health officer of each county. In all, 3,700 schools were examined. The preliminary report deals with 1,375 of these inspections. Out of a total of 105 counties in Kansas, 54 have reported. A state law obligates the local health officer, or his staff, to make a fall inspection of all schools. Recently unform reporting sheets were provided by the State Board of Health, and a guide delineating standards and recommendations has been developed for use in this survey. The results of this survey are seen in the following chart:

Preliminary Report on School Inspections

Elementary schools	3,000	(approximately)
Over 4 teachers (3 classes or more)	1,100	
Less than 4 teachers (1-3 rooms)	1,900	
High schools	700	

Of total 3,700 schools—1,375 have reported.
Of total 105 counties—54 counties have reported.

Schools more than 4 teachers	1,100	390 reporting
Excellent—29 new	39	
Satisfactory	210	
Substandard	119	
Unacceptable	22	
Schools less than 4 teachers	1,927	768 reporting
Excellent—40 new	44	
Satisfactory	186	
Substandard	323	
Unacceptable	215	
High and junior high schools	700	217 reporting
Excellent—18 new	31	
Satisfactory	120	
Substandard	58	
Unacceptable	8	

Some generalizations can be made from this preliminary study. Generally, the schools classified as unacceptable, or substandard, are rural schools. There are, however, many outstanding exceptions.

Reasons for the lack of acceptance fall into the following categories:

1. Outdoor, poorly maintained, often extremely unsanitary toilets, not connected to any sewage system. Some school sewage systems drained onto playground areas.

2. Water which is unfit for human consumption by bacteriological survey, contaminated wells, lack of proper drinking vessels, etc. Approximately 30 schools showed water which was grossly contaminated by bacteriological survey. From 100 to 150 schools were suspected of false tests (done at improper moments after chlorination, etc.). Some schools have no water. (Children bring water from home or have water hauled in milk cans.)

3. Crowded, poorly maintained buildings, or rooms with minimum light and maximum dirt and dust.

4. Out-dated and sometimes hazardous heating systems. Can one teach health in unsanitary surroundings? Should our children be exposed to unnecessary dangers of unclean water, fire hazards, etc.?

Another problem becoming more common is location of a school near highways and heavily traveled areas. In many instances no precautions have been taken to enclose the grounds or play areas to prevent accidents.

The survey showed some inadequacies in the con-

struction of new schools. Although the majority of new schools are excellent, some are built on inadequate grounds, and many are constructed so that the quality and the distribution of light are extremely poor. New school construction must meet national building code standards and must be approved by an architect. There is no provision for approval by the State Board of Health or the State Board of Public Instruction. Some new schools are built with inadequate square footage per pupil, deficient restroom facilities for the school population, etc. Fire hazards were found in many schools. So far in this survey, 30 schools are seen to have no fire fighting equipment and 40 more schools have outdated and ineffective fire fighting apparatus.

Concerning smaller schools and health instruction, one can say only that the health instruction the children get depends upon the knowledge and interest of the teacher. There is no health curriculum guide in existence in most of these small school areas.

There are many bright spots in the local school health situation, however. Many communities have had and are continuing to hold school health workshops, as previously mentioned.

Many local physicians are becoming interested in what is being taught and in the health environment of their local schools. They are acting on school boards or as medical advisors to educators. Several new local school health committees are being formed to counsel educators in improving health services, health instruction, and healthful environment. Physicians of the Kansas Medical Society's Committee on School Health have been participants in many teacher district conferences, talking on health subjects. The future is bright for an improved teamwork approach to this problem.

Plans for the Future

The American Medical Association has been interested for years in promoting conferences between school personnel and practicing physicians. Conferences for physicians and schools have been held throughout the country under sponsorship of the A.M.A. The University of Kansas Medical School, for the past four or five years, has held a postgraduate course in school health and is interested, under Chancellor Murphy's direction, in increasing physician participation in local school health matters.

The establishment of a health division in the State Department of Public Instruction seems a likely possibility. The effect of the newly formed State School Health Advisory Council on the local school health situation will undoubtedly be felt. This organization offers an area for resource material, professional guidance, consultative services, and organized coordinated activities for furthering local school health activities.

The continued functioning of the Kansas Medical Society's Committee on School Health will undoubtedly have its effect upon the practicing physician. The interest of educational institutions in the state which train our teachers makes it appear that in the future our educators themselves will be better versed in the field of health and better equipped to teach this subject to our children.

But, most important, is the realization by all professions that to attain maximum efficiency a teamwork approach is paramount. The medical societies, national, state, and local, are beginning to realize that participation is of value to the physician, to the child, and to the community. It is essential for the best coordinated and most adequately organized school health program.

Conclusions

In any school the primary goal is the production of a healthy, educated person. The health of the child is a primary responsibility of his parents. The educator is charged with determining how and when the child will learn and must rely upon the disciplines of medicine, public health, psychology, physiology, dentistry, and many others, for the basic content of what is to be taught on health.

The health problems of children today are not what they once were. Progress has been made in prevention of infectious disease by inoculation and through the use of sanitary principles. Education on the value of vitamins and of good diet has been effective. This means the objectives of health services for our children cannot be the same as they once were.

We have taken pride in lengthening our life span, in reducing our infant mortality rate, in treatment of illness, in advances in diagnosis. However, have we looked at the total health picture? Parents who think they have healthy children should look a second time. These children may appear healthy but may actually be far from optimum health. Is this child functioning at capacity in the school situation?

Attaining the maximum degree of leadership by the medical profession of Kansas will depend upon whether there is active participation by all physicians and whether the county medical societies of Kansas participate by forming local school health committees.

The School Health Committee of the Kansas Medical Society urges the participation of the local physician in the formation of local school health councils. This is the only mechanism by which the teamwork principle is applied.

Medical Arts Building
1001 Horne Street
Topeka, Kansas

Clinicopathological Conference

Headache, Transitory Hemiplegia, Confusion and Coma

Case Presentation

The subject of this conference was a 65-year old white man who was admitted to KUMC for neurosurgical evaluation on August 9, 1957. He died on September 16, 1957.

He had apparently been in good health until about three months before admission when he developed a pain in the right side of his face. This pain lasted for one month, and was relieved by the extraction of two teeth, one of which was reported to be abscessed. Four days after the extraction, while vacationing in Colorado, he complained of fatigue and poor appetite. At that time he was bitten in the right antecubital fossa by a large insect described as a fly.

Shortly after arriving home from vacation he developed a headache, and began to vomit. He was admitted to a local hospital with a fever of 102 degrees. After four days he was transferred to another hospital where he continued to have fever, headache and vomiting, and, in addition, a stiff neck. A cerebrospinal fluid had a cell count of zero, a total protein of 49 mg. per cent, and a positive Friedlander's culture. A repeat spinal tap showed a total protein of 80 mg. per cent with 2 to 3 per cent lymphocytes and a positive Friedlander's culture. A later spinal fluid contained 164 mg. per cent of protein with 9 white cells.

He continued to have a febrile course, and subsequently developed disturbed vision in his right eye. He complained that he was totally blind for several days, but then recovered his sight. On August 4, he was completely comatose, and had left hemiplegia. There was puffiness around his left eye which was turned outward. During the next five days the hemiplegia regressed, but he was confused and incontinent. He continued to have fever, but he had no seizures.

The patient had been an oil well driller. He had a possible past history of syphilis, and for the preceding three years he had had "heart disease" and an irregular pulse. He had received some medication, but the background of this was unknown.

He was a chronically ill man, and was confused, incoherent and unable to respond logically to questions. His face was flushed, and his neck was stiff. His blood pressure was 130/80; the pulse rate was 92 per minute and grossly irregular; and the respiratory rate was 16 per minute. The pupils were round and irregular, the right being larger than the left and sluggish in reaction. The eyes did not move conjugately. There was an apparent bilateral sixth nerve paresis as well as paralysis of the upward gaze with rotary nystagmus. The optic discs did not show papilledema. There was fresh chorioretinitis on the right. There was no other specific cranial nerve paresis with the possible exception of right facial weakness. He could use all of his extremities well, resisting any movements. The deep tendon reflexes were within normal limits bilaterally. There were no Babinski or Hoffman signs. His chest was clear to auscultation and percussion. There was a grossly irregular cardiac rhythm. There were no abdominal masses or tenderness, and the abdominal reflexes were absent. The bladder was distended. He was incontinent of feces. He responded to painful stimuli bilaterally. He had no abnormal skin markings.

The specific gravity of the urine was 1.014 with a heavy trace of albumin, 6 to 8 pus cells per high power field, and the specimen was loaded with amorphous urates. Repeat urinalyses showed specific gravities of 1.011 and 1.016 with traces of albumin. One specimen contained 1.25 mg. per cent of sugar, and was loaded with red cells and occasional white cells and casts. On admission the hematocrit was 52 ml. The hemoglobin was 15.6 gm. and varied to a minimum of 12 gm. The white count was 19,200 with 87 per cent polymorphonuclears (all filamented), 8 per cent lymphocytes, and 5 per cent monocytes. Repeat white cell counts were from 12,350 to 32,000 on the day of death. On September 2, 1957, the hematocrit was 40 ml., and the white count was 12,350 with a differential of 90 per cent polymorphonuclears (all filamented), 7 per cent lymphocytes, 2 per cent eosinophiles, and 1 per cent monocytes. On September 9 there were 77 per cent polymorphonuclears (67 filamented), 19 per cent lymphocytes, 1 per cent eosinophiles, 2 per cent monocytes, and 2 per cent metamyelocytes. The platelet count was 204,000 shortly after admission. The serology was non-reactive.

Edited by Jesse D. Rising, M.D., and Mahlon Delp, M.D., from recordings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology, and pathology of the University of Kansas Medical Center, as well as by the third and fourth year classes of students.

The blood urea nitrogen on admission was 6 mg. per cent; glucose, 104 mg. per cent; sodium, 126 mEq L; potassium, 4.1 mEq; chloride, 82 mEq. On August 21 the carbon dioxide was 35 mEq; sodium, 139 mEq; potassium, 4 mEq; chlorides, 92 mEq; calcium, 4.3 mEq; phosphorous, 1.5 mEq. On August 28 the sodium was 132 mEq; potassium, 4.2 mEq; chloride, 95 mEq; carbon dioxide, 25.2 mEq; calcium, 4.4 mEq; phosphorous, 1.3 mEq; albumin, 2.59 gm. per cent. On September 13 the sodium was 133 mEq; potassium, 3.9 mEq; chloride, 101 mEq; carbon dioxide, 25.2 mEq; albumin, 2.87 gm. per cent; globulin, 2.54 gm. per cent.

The spinal fluid (August 9) was clear with an opening pressure of 190 mm. of water, and a closing pressure of 80 mm. The cell count was 15 red blood cells, 165 white blood cells with 12 per cent polymorphonuclears and 88 per cent lymphocytes. The colloidal gold was 0***43221 (*atypical); sugar, 15 mg. per cent; sodium chloride, 610 mEq; protein, 177 gm. per cent. A Wassermann test was negative. On August 12 the cerebrospinal fluid cell count was 110 white blood cells with 72 per cent lymphocytes; no red cells; sugar, 20 mg. per cent; protein, 210 gm. per cent. On August 21 there were 18 white blood cells and 5 red blood cells; the sugar was 21 mg. per cent; sodium chloride, 640 mEq; protein, 158 gm. per cent. On September 7 there were 110 white blood cells, 46 per cent of which were lymphocytes; sugar, 28 mg. per cent; sodium chloride, 740 mEq; protein, 180 gm. per cent.

The sodium excretion varied from 66 to 207 mEq/L in 24 hours; potassium, 18 to 57 mEq; chloride, 77 to 165 mEq. On August 23 the blood ammonia was 103 mcg. per cent, and the blood pH was 7.57. A spinal fluid culture on admission was negative at 72 hours, and an India ink study was negative. A urine culture on August 15 developed a scant growth of non-hemolytic staphylococcus. Five blood cultures drawn shortly after admission, repeat spinal fluid cultures and repeat India ink studies were all negative. On August 21 a proteus species was isolated from the urine. On August 15 the total serum bilirubin was 0.5 mg. per cent, direct bilirubin, 0.1 mg. per cent; alkaline phosphatase, 1.0 millimol units; bromsulphalein retention, 14 per cent; cephalin cholesterol, negative; thymol turbidity, 1 unit; albumin, 2.76 gm. per cent; globulin, 2.26 gm. per cent; and cholesterol, 107 mg. per cent with 57 per cent esters.

The patient was extremely lethargic and confused. On August 11 he was given intravenous fluids consisting of glucose, saline and supplemental potassium. The stiffness of his neck became more marked. On August 13 he lapsed into a deep coma, his respiration became irregular, and his pulse rate was slow. The rigidity of his neck disappeared. His pupils were pinpoint. There was no papilledema.

On August 14 he was transferred to the neurology service. He was given 1 gm. of chloramphenicol and 0.5 gm. of streptomycin every eight hours. His blood pressure fluctuated, dropping as low as 90 50. On August 15 his blood pressure rose acutely to 140/80, but dropped to 85-95/60-70 the next day. During the first eight hospital days his temperature was between 99.2 and 103.4 degrees. On August 17 it dropped to normal, but rose to 103.2 degrees on August 21. On August 29 his temperature again returned to normal, and there were only slight elevations until September 12 when it rose again to 101 degrees, rectally, where it remained until his death.

He was given intravenous fluids because of his inability to eat and swallow. On August 14 he was started on 100 mg. of isonicotinic hydrazide, three times a day. On August 16, 100 mg. of hydrocortisone was added to the intravenous fluid, and this was done daily until August 23 when the dose was decreased to 50 mg. On August 17 a femoral catheter was placed for continuous intravenous therapy. From August 24 to August 26 he was given 25 mg. of polymyxin B every six hours. On August 26 the hydrocortisone was changed to 25 mg. intramuscularly every twelve hours. Because of prolonged intravenous fluid therapy supplemental magnesium and calcium salts were added to the intravenous fluids. On August 27 the chloramphenicol was discontinued and 500 mg. of tetracycline was given three times in the intravenous solutions. On September 11 the hydrocortisone was stopped, but he continued to receive 1.5 gm. of tetracycline and 1 gm. of streptomycin daily and 200 mg. of INH three times a day. On September 15, 100 mg. of hydrocortisone was added to the I.V., and the intravenous fluids were subsequently discontinued.

During the first few hospital days he responded slightly to commands to move, but afterward he showed no further changes. Spinal fluid specimens on August 21 and 28 were xanthochromic. An intrathecal block could not be demonstrated. On September 15 his blood pressure dropped to 80 60. The pulse rate was 110 per minute, thready and irregular, and there was Cheyne-Stokes respiration. His skin became mottled in appearance. His blood pressure was unobtainable for eight hours before death on September 16, 1957.

Dr. Mahlon Delp (moderator): Are there any questions?

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* Although a student at the time of this conference in February, 1958, he, like the others referred to as students, received the M.D. degree in June, 1958.

Thomas Raymond (fourth year medical student)*: What were the results of the skin tests?

Dr. Robert Manning (resident in medicine): Both the tuberculin and histoplasmin skin tests were positive.

Mr. Raymond: What was the coccidiodin skin test?

Dr. Manning: It was not done.

Harold Ray (student): How many India ink studies were done?

Dr. Manning: Three India ink studies were done, and all were negative.

Robert Shaskey (student): Were any weight changes noted before or after admission?

Dr. Manning: No.

Mr. Ray: Were the sputum or gastric washings cultured?

Dr. Manning: No sputum or gastric washings were done.

Donald Rorabaugh (student): How many spinal fluid cultures were made for tuberculosis?

Dr. Manning: Three cultures were done.

James Rhodes (student): What was the result of the ear, nose and throat examination?

Dr. Manning: It was not remarkable.

Mr. Rhodes: Were lymph nodes found at any time?

Dr. Manning: No unusual lymph nodes were found.

Walter Reazin (student): Had he ever traveled through the San Joaquin Valley?

Dr. Manning: His wife said that he had not.

Mr. Raymond: Had he been given any antibiotics before his admission?

Dr. Robert Weber (internist): I do not believe so.

Mr. Shaskey: What was his oral intake while he was in the hospital?

Dr. Manning: He took a limited amount by mouth during the first two or three days, but none after that.

Mr. Rorabaugh: What was the venous pressure and circulation time?

Dr. Delp: Dr. Hudson remarked that his peripheral circulation time was increased. How did you arrive at that estimation, Dr. Hudson?

Dr. Robert Hudson (internist): His skin color failed to return to normal after pressure.

Dr. Delp: That is a good clinical observation. Now, are there any other questions?

Roger Youmans (student): Is there a correlation between the blood glucose levels and the spinal fluid glucose levels?

Dr. Manning: On August 13 the blood sugar level was 104 mg. per cent.

Dr. Delp: We will now see the electrocardiograms.

Mr. Rhodes: A tracing taken on August 21, 1957, shows a rate of approximately 80, a slightly irregular sinus rhythm, and ventricular premature contractions. The P waves are upright, and there is a slight depression of the S-T segments. The QRS-T vector is between 0 and 10 degrees, and the transition zone is at V_2. I interpret this tracing as showing a slight sinus arrhythmia with premature ventricular contractions and possibly myocardial ischemia.

The next tracing taken on the day before death (Figure 1) shows a rate of 120 and an irregular sinus rhythm. The P waves are peaked in leads II and, again, there is a depression of the S-T segments and probably premature atrial and ventricular contractions. With the exception of the increased rate, I interpret this tracing as being similar to the first tracing.

Dr. Delp: What is your interpretation of the P-R interval?

Mr. Rhodes: I believe it is within normal limits, being between 0.08 and 0.12 seconds.

Dr. Delp: May we have the x-rays now, please?

Mr. Robinson: A lateral skull plate taken on admission shows a normal sella and some prominent vascular markings. The pineal body is calcified and appears to be in a normal anatomical position. No bony erosion is seen. In the frontal projection the calcified pineal appears to be shifted. There is rotation of the skull which makes this difficult to evaluate.

A chest plate taken on admission does not show elevation of the diaphragms. There is no calcification in the hilar areas, and the lung fields are clear. There is apparent widening of the mediastinum, but I believe this is a distortion caused by the supine position of the patient. I interpret this as a normal chest plate.

A KUB film taken on admission is somewhat obscured by overlying gas in the bowel. There are no abnormal soft tissue shadows. There is apparent scoliosis of the lumber spine to the right, but the patient was rotated, and I interpret this as a normal KUB film.

Dr. Delp: Dr. Youngstrom, may we have your comments?

Dr. Karl Youngstrom (radiologist): I agree essentially with that interpretation, and I do not see anything unusual in the skull films.

Dr. Delp: We will now have the discussion, Mr. Rorabaugh.

Differential Diagnosis

Mr. Rorabaugh: A 65-year old man was first admitted to this hospital three months after the onset of his illness which was originally manifested as soreness and pain on the right side of his face. These

symptoms persisted for about a month until relieved by the extraction of two teeth. Four days after the dental work he had an acute onset of meningeal irritative symptoms with fever, and the disease progressed to a chronic stage, terminating in death. Because of this clinical course my differential disgnosis will be the consideration of diseases which cause chronic meningitis with emphasis on cerebrospinal fluid findings and the absence of positive cultures.

Carcinomatosis of the central nervous system gives a similar course and cerebrospinal fluid findings. There is, however, no evidence of a primary elsewhere in our patient, and, discounting the original symptoms of jaw involvement, the onset was too acute.

Sarcoidosis occasionally involves the central nervous system and may produce identical spinal fluid findings, but it runs a benign course, involves other systems, and gives rise to an increased globulin.

Infectious diseases must be considered strongly. Syphilis, especially, may cause a chronic meningitis, but I shall dismiss this disease because of the absence of serologic evidence of syphilis. An encephalitis of obscure origin may be caused by trichinosis, and central nervous system involvement occurs in 10 to 17 per cent of such cases. But without evidence of the involvement of other systems and in the absence of eosinophilia, I shall rule this out.

Toxoplasmosis must be considered. In infants there is the triad of internal hydrocephalus, chorioretinitis and intracranial calcification. This may also occur in adults, but it more commonly involves the skin and lungs. I shall rule out this disease on the basis of the patient's age, the absence of intracranial calcification, and a relatively low cerebrospinal fluid cell count.

Inadequately treated bacterial meningitis must be considered. This disease has a similar course to our patient's, and must also be considered because of the extraction of teeth preceding the onset of his disease. I shall rule out this possibility because of the absence of the typical findings in the spinal fluid and lack of positive cultures in this hospital. Furthermore, the patient failed to respond after adequate antibiotic therapy was given.

Rickettsial diseases can be dismissed because of the absence of any skin eruption, the lowered cerebrospinal fluid sugar, and the extended course. Viral infections, particularly lymphocytic choriomeningitis, must be considered, but these infections have a relatively short, benign course; when fatal, they are usually rapidly so. The sugar is found to be normal in the cerebrospinal fluid in these patients.

Foremost in my consideration are the mycoses and tuberculosis which characteristically present similar findings. They can be proved only by demonstration of the organism in the cerebrospinal fluid when evidence of involvement of other organs is lacking. Wide dissemination may occur with any of the mycotic infections, but, of these, *Cryptococcus neoformans* has a definite predilection for the central nervous system. Actinomyces, blastomyces, coccidioidomyces, nocardia and monilia are all reported to invade the central nervous system, but occur infrequently and usually involve other sites. These diagnoses can also be based upon certain immunological studies, whereas studies for *Cryptococcus* are not yet available. Because our patient presented primarily with central nervous system involvement, my discussion will be concerned with *Cryptococcus* infections. I recognize that meningeal infection caused by these agents cannot be separated clinically, and that demonstration of the organism is necessary for a definitive diagnosis.

Cryptococcosis, sometimes called torulosis, is a relatively rare, subacute or chronic, highly fatal infection which may involve any part of the body, but has a marked predilection for the brain and meninges. The organism is an oval cell surrounded by a large capsule which can be outlined clearly in India ink preparations, and which grows readily on Sabouraud's agar. Our patient's clinical course parallels that occurring in torulosis in which there is an insidious (or occasionally sudden) onset of headache, vomiting and stiff neck accompanied by progressive fever. As the disease progresses there are more severe signs such as ocular palsy, chorioretinitis, increased intracranial pressure, ataxia, or hemiplegia. The patient finally becomes comatose, and there is respiratory failure. It has been reported that 70 per cent of these patients die within the first three months, and 86 per cent die within the first year. The usual cerebrospinal fluid findings are increased pressure, increased mononuclear cells, decreased sugar and chlorides. Diagnosis is dependent on demonstration of the organism.

Tuberculous meningitis is common and secondary in incidence only to the meningococcus as a cause of meningitis. Its onset and course is commonly similar to the description of *Torula*. Cerebrospinal fluid findings do not differentiate these two diseases. Tuberculous meningitis is more common in childhood and early adult life, but it may occur later. It may develop from generalized miliary tuberculosis or pulmonary tuberculosis, and is not infrequently the presenting aspect of this disease. Without medical treatment it is rapidly fatal, but adequate treatment initiated in the early stages may arrest 80 to 90 per cent of these cases. When treatment is begun in the later stages, as in our patient's case, only about 25 per cent recover. Again, a definitive diagnosis can

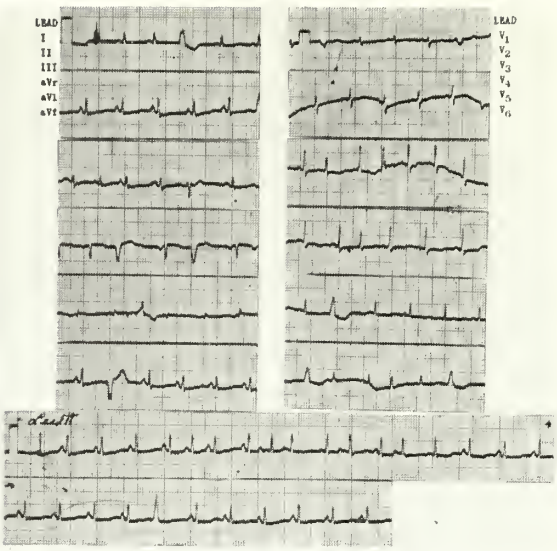

Figure 1. Electrocardiogram taken on August 8, 1957.

be made only by demonstration of the organisms. I believe, however, that our patient had a chronic meningoencephalitis with tuberculosis or *Torula* as the etiological agent.

The neurological symptoms are best explained by diffuse basilar involvement of the meninges. The electrolyte pattern on admission is probably best explained by vomiting, dehydration and fever. I believe that our patient died of diffuse meningoencephalitis with brain stem involvement causing respiratory depression and circulatory collapse.

Clinical Discussion

Dr. Delp: Thank you. Mr. Raymond, may we have your diagnosis?

Mr. Raymond: My diagnosis is torulosis.

Dr. Delp: Mr. Ray?

Mr. Ray: Torulosis.

Dr. Delp: Mr. Reazin?

Mr. Reazin: Cryptococcal meningitis.

Dr. Delp: Mr. Shaskey?

Mr. Shaskey: Torulosis.

Dr. Delp: Mr. Rhodes?

Mr. Rhodes: I believe he had a fungal infection other than *Cryptococcus*.

Dr. Delp: Mr. Robinson?

Mr. Robinson: Cryptococcosis.

Dr. Delp: What is your diagnosis, Mr. Rorabaugh?

Mr. Rorabaugh: I believe he had tuberculosis.

Dr. Delp: Does his response to INH and streptomycin disturb you?

Mr. Rorabaugh: No, the response is poor when treatment is instituted late.

Dr. Delp: What do you believe is the connection between our patient's facial pain and his final illness, Mr. Raymond?

Mr. Raymond: Other fungal infections could localize spots such as this; he could have had a fungal abscess of the tooth, and there could also have been involvement of a cranial nerve with a fungus.

Dr. Delp: Mr. Ray?

Mr. Ray: I believe he had a pyogenic abscess.

Dr. Delp: Do you believe he had a toothache?

Mr. Ray: Yes.

Dr. Delp: Mr. Rhodes, what is your opinion?

Mr. Rhodes: I believe his toothache was unrelated to his illness.

Dr. Delp: Do you believe you would recognize a toothache, or would you believe you had a pain in your face, Mr. Rorabaugh?

Mr. Rorabaugh: I probably would know that I had a toothache.

Dr. Delp: Do you believe that most people would know if they had a toothache?

Mr. Rorabaugh: I believe they would.

Dr. Delp: Mr. Raymond, why do you discard the diagnosis of bacterial meningitis so readily?

Mr. Raymond: There is a higher pleocytosis in bacterial meningitis, and, excluding tuberculosis, the spinal fluid sugar and chloride are normal. Furthermore, he should have responded to the antibiotics.

Dr. Delp: Mr. Rhodes?

Mr. Rhodes: I believe that an abscess would have formed if he had been inadequately treated, and he had no localizing signs.

Dr. Delp: Mr. Raymond, did you discard syphilis because the patient had a negative serology?

Mr. Raymond: The protocol reported a negative Wassermann in the spinal fluid. The meningovascular type of syphilis may cause symptoms similar to his, but this disease is almost always associated with a reactive spinal fluid.

Dr. Delp: Dr. Weber, what was your diagnosis?

Dr. Weber: I saw the patient shortly after his admission. With two reports of Friedlander's bacillus I believed that a diagnosis of bacterial meningitis should be considered first. The organism is not difficult to culture, and, when our laboratory was unable to find it, that diagnosis lost its appeal. I would also have expected the cell count to be much higher if this had been a true bacterial meningitis. The low sugar, the chronicity, and the other reports all suggested tuberculosis which is a bacterial meningitis.

Dr. Delp: You recommended INH and streptomycin, didn't you?

Dr. Weber: Yes, I did.

Dr. Delp: What was your diagnosis, Dr. Steegmann?

Dr. Theodore Steegmann (neurologist): The patient had meningitis and focal lesions referrable to the superior brain stem level. Because of the spinal fluid changes it seemed necessary to rule out the more chronic types of meningitis. The cultures for *Cryptococcus hominus* and for tuberculosis were negative, but he was given therapy for possible tuberculous meningitis because the spinal fluid changes seemed to point most strongly in that direction. It is relatively easy to identify ordinary *Torula* infection with an India ink preparation and culture, but these were reported negative on two occasions. Treatment, therefore, was started on the assumption that this was possibly tuberculosis.

Dr. Delp: Do you believe our patient could have tolerated amphotericin B, Dr. Weber?

Dr. Weber: I believe he could have tolerated it, and he possibly should have received it. In my opinion, the combined use of INH, streptomycin and amphotericin B until there is an etiologic diagnosis is quite legitimate.

Dr. Delp: I believe the students all believed he should have had amphotericin B. Is that right, Mr. Rorabaugh?

Mr. Rorabaugh: We strongly considered it.

Mr. Raymond: A bacteriologist reported that the *Klebsiella* organism, when isolated, will appear to be similar to the *Torula* organism, and this may have first suggested a diagnosis of torulosis, in which case amphotericin B should have been used.

Dr. Delp: May we have the pathologist's report, please?

Pathological Report

Dr. Leroy R. Hieger (pathologist): As was expected, the significant lesions were related to the brain. It weighed 1545 grams. Increased intracranial pressure was evidenced by slight flattening of the gyri and narrowing of the sulci. There was a small cerebellar pressure cone and some evidence of uncal herniation.

The meninges were of prime interest because they contained, in close association with the vascular network, numerous yellowish-white, moderately firm nodules, usually discrete but occasionally confluent. These were more prominent over the frontal poles and over the superior surface of the cerebellum than over the other lobes. In addition, the choroid plexus was greyish-white, firm and nodular.

Figure 2. Cryptococci in India ink preparation showing encapsulated yeast.

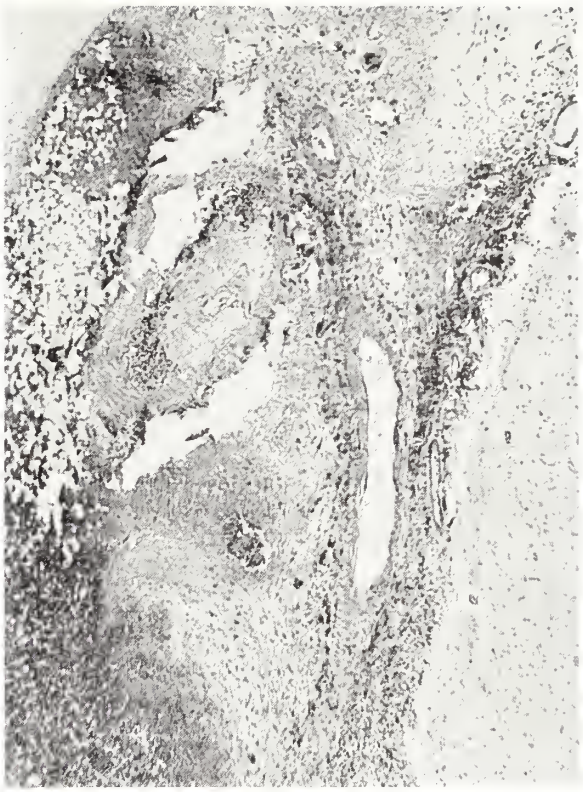

Figure 3. Meningitis with necrosis of exudate (left), vasculitis (center) with brain (right) unaffected. Clear areas in necrotic exudate are occupied by fungi. Giant cells are present in a vertical line in the right center. PASH X 44.

Consecutive coronal sections of the brain indicated that an area of softening, noted externally, involved mainly the cortex on the right side. Other areas of softening were noted throughout the basal ganglia, the thalamus, around the third ventricle, and, in fact, throughout the brain stem and the cerebellum. These were presumably the cause of death.

In an attempt to identify an organism we made touch preparations of the frontal cortex in particular, and these were stained for bacteria and fungi. From the PAS stains it was readily apparent that we were dealing with an encapsulated yeast. Since there is only one such yeast that invades the nervous system of man, it was obviously *Cryptococcus neoformans*, sometimes called *Torula histolytica*. Cultures yielded a yeast-like growth. An India ink preparation demon-

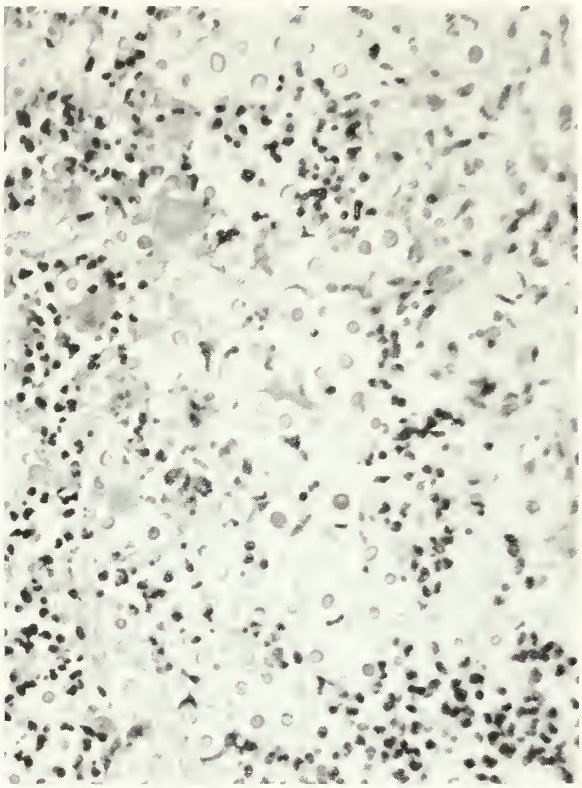

Figure 4. Crypotococcis in choroid plexus accompanied by granulocytes. Clear spaces due to capsule which has shrunken and dehydrated specimen. PASH X 250.

strated the organism with its nucleus and its large capsular halo (Figure 2).

Dr. Thorkil Jensen (department of microbiology) injected eight mice with yeasts from the culture, four intracranially and four intraperitoneally. The first four were all dead within one week. Of the other four, three were dead within four weeks, and one was sacrificed. Organisms and the typical lesions were noted, thus fulfilling Koch's postulates.

Sections through one of the meningeal nodules from the frontal cortex showed yeasts, granulomatous inflammation with giant cells and a rather large amount of necrosis (Figure 3). In addition there was vasculitis with intimal proliferation and narrowing sometimes leading to occulsion.

The choroid plexus was also involved by granulomatous inflammation accompanying yeast forms (Figure 4).

The fungal capsule was demonstrated with mucicarmin, and histochemically with reactions for acid mucopolysaccharides (Figure 5).

The right adrenal contained a granulomatous nodule. Microscopically there were fungi with necrosis, some palisading of epithelioid cells about some of the periphery, chronic inflammatory infitrate, and giant cells (Figure 6). The left adrenal, although not involved with granulomatous inflammation, showed occlusion of the central vein by thrombus, resulting in extensive infarction of approximately three-fourths of the gland.

We thought that the gross specimen demonstrated some atrophy of the right adrenal cortex, and this was confirmed by thinning of the zona fasciculata and reticularis in the microscopic sections. This correlated well with the history of corticoid administration lasting 26 days and discontinued five days before death. The terminal recurrence of fever and of hypotension was probably secondary to adrenal hypofunction, both corticoid-induced and secondary to infarction on the left. An oil red O stain showed good preservation of adrenal lipids on the right.

We sectioned the lungs serially, at about 3 millimeters, but were not able to demonstrate the usual solitary primary cryptococcal lesion. However, we did find, especially in the lower lobes, focal fibrosis, diffuse vesicular emphysema and acute bronchitis. It is tempting to speculate that these might represent the residua of pneumonic infiltration with cryptococci.

An incidental finding, probably related to the periodic bouts of hypotension which this man ex-

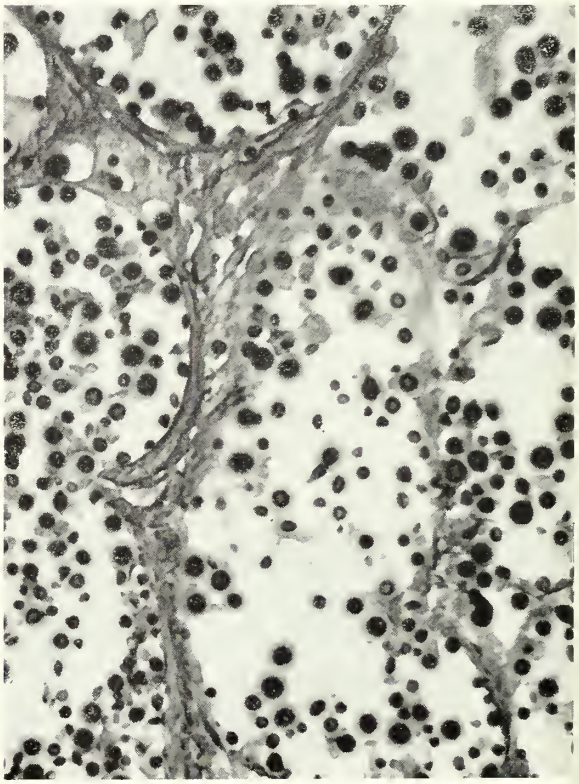

Figure 5. Cryptococci showing capsule. PASH X 250 mounted in glycerol-jelly to prevent shrinkage.

perienced before his death, was the acute tubular necrosis, manifested by swelling of the renal tubular epithelium with vacuolation, focal loss of cells, casts, and a chronic inflammatory infiltrate probably due to rupture of cast-filled tubules. That this was not all pre-terminal is suggested by the regeneration of tubular epithelium.

This case did not show the typical lesions of cryptococcal meningitis with the soapsuds appearance of the cortex produced by the extension of the meningeal inflammation along the perivascular spaces of Virchow-Robin (Figure 7). The organisms multiply in these spaces, and, because of the large amount of mucinous capsular material, give rise to space-consuming cystic lesions. Most of the organisms are within macrophages, which are frequently fewer in number than the yeast.

The easiest way to identify cryptococci found in tissues is to demonstrate their capsules. If thin, they are not conspicuous, and there may be difficulty in differentiating *Cryptococcus* and *Histoplasma*. If, instead of dehydrating the slides prior to mounting, one uses aqueous glycerin jelly, the capsule does not shrink, and even thin capsules are readily apparent (Figure 5).[2] There are about seven species of cryptococci of which *neoformans* is the only virulent one. The easiest way to eliminate saprophytic species is to incubate cultures at 37 degrees C. *Neoformans* will grow, and the others will not. Demonstration of virulence for mice is confirmatory.

Torulosis has been reported from Europe, the United States and Australia. Many instances of subclinical infection probably occur, and cutaneous cryptococcosis may regress. Clinical disease more frequently occurs in males between the ages of 30 and 60 years, and seemingly more commonly in the white race. According to the records of the Armed Forces Institute of Pathology, at least 30 per cent of these cases of cryptococcosis are associated with a lymphoma or leukemia. Dissemination is found, as in this case, in about 50 per cent of the clinical cases and in almost all of the cases associated with lymphomas. Prior to the advent of specific chemotherapy, the usual course was about six months, on the average. The patient usually dies of meningoencephalitis, frequently associated with adrenal necrosis.

Dr. Jacob K. Frenkel (pathologist): I admire Mr. Rorabaugh's tenacity of sticking to a reasonable diagnosis in view of so many negative laboratory findings because the purpose of the CPC is to be reasonable rather than right. Tuberculosis is certainly a reasonable diagnosis. I saw this patient three days after entry for what we believed to be a fresh chorioretinitis. On re-examination this was noted to be healed.

Figure 6. Focal necrosis with surrounding granulomatous reaction in right adrenal. Adjacent to the intact cortical cells is a zone of proliferating fibroblasts followed by epithelioid and giant cells then necrosis. The clear areas contain groups of cryptococci. PASH X 44.

In the presence of fresh chorioretinitis, toxoplasmosis or cryptococcosis needed to be considered. They could not have been diagnosed or ruled out, however, by the data Mr. Rorabaugh had available. The statement previously made that *Klebsiella pneumoniae* (Friedlander's bacillus) looks much like *Cryptococcus* on solid-medium cultures is important, and it may explain the erroneous interpretation of the spinal fluid cultures at the previous hospital. Both organisms form so much mucoid material that they can be confused. They can, however, be differentiated by Gram staining, because *Klebsiella* is a short rod whereas *Cryptococcus* is a spherical organism. The so-called "histolytic" and "neoformans" attributes of *Torula* have been explained by Dr. Hieger. I believe that we need to be more concerned with the cryptic nature of *Cryptococcus*, the fact that it is hidden and usually difficult to find. I made a survey of laboratory technicians to determine whether they knew what *Cryptococcus* or *Torula* was, and in most instances got a negative answer. All medical students have studied this fungus in their pathology and microbiology

Figure 7. Typical cryptococcic meningitis with mononuclear exudate (below and left) which extends along perivascular spaces into cortex, forming cyst-like dilatation (above). From a different case. PASH X 44.

courses, and it is basically the physician's and the medical student's responsibility either to look at the specimen himself or to take it to the laboratory and verify that the technician knows exactly what examination is requested. Dr. Hieger made smears himself and identified the organisms, and that is the way it should be done.

We see here a rather typical case of cryptococcosis involving two sites where there is least resistance. The meninges are involved owing to the limited phagocytic and digestive ability of the mononuclear cells in the central nervous system. The adrenal infection was aided by the endogenous production of corticoids, locally depressing immunity. The histologic reaction and the necrosis were rather suggestive of tuberculosis (Figure 3). Ordinarily there is little or no necrosis in cryptococcosis (Figure 7). I have recently seen a similar reaction, and both patients had been treated with corticoids. Probably the tendency to necrosis in the meninges was augmented by corticoid therapy. Also the corticoid-induced adrenal hypofunction permitted fibroblastic proliferation around the focus of necrosis in the adrenal (Figure 6). Ordinarily, the high corticoid levels in the adrenals prevent fibroblastic proliferation, and necrosis is progressive, leading to Addison's disease.

Summary

Dr. Delp: The physical diagnostic evidence to be found in the history and examination suggested a form of chronic meningitis. At this point the diagnostic routine broke down with failure to demonstrate the *Cryptococcus* in the spinal fluid. It seems unlikely that the outcome could have been changed, but the fact that laboratory evidence with its vagaries was accepted all too implicitly seems clear.

Pathological Anatomical Diagnosis

Necrotizing cryptococcal meningitis and ependymitis with multiple recent infarcts involving the cerebral cortex, basal ganglia, brain stem, and cerebellum.

Hyperemia and edema of the brain, 1545 grams.

Adrenal vein thrombosis with subtotal infarction, left.

Acute bronchitis and bronchiolitis.

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2. Mowry, R. W.: The value of mucopolysaccharide hydration in the demonstration of microbial capsules in paraffin sections: with special reference to *Cryptococcus neoformans* and pneumococci. Am. J. Path. 34 (3):595-596, 1958.

Study of Amines and Enzymes

Basic research at the National Heart Institute on the functions of amines as brain hormones and on the enzymes that make and destroy those chemicals in the human body is leading to the development of drugs which may be useful against hypertension, epilepsy, and mental illness.

The amines of greatest current interest are serotonin and norepinephrine. These are found in the brain and other body tissues, where they may influence blood pressure, and other functions that are beyond conscious control.

The drugs under study are compounds which counteract monoamine oxidase (MAO), an enzyme which normally destroys these amines in the body. Many of the effects of these MAO-inhibiting drugs are thought to be due to the accumulation of serotonin and norepinephrine in tissues. Other amines still undiscovered may also be involved.

Because the amines destroyed by MAO have a role in controlling blood pressure, scientists have been exploring the blood pressure effects of the MAO inhibitors. One unusually powerful inhibitor, 1-phenyl-2-hydrazinopropane, or JB 516, has been found by Dr. Louis Gillespie, Dr. Luther Terry, and Dr. Albert

Sjoerdsma, to lower blood pressure in hypertensive patients. The antihypertensive effects of JB 516 appear from these clinical studies to resemble those of certain drugs in wide use against hypertension but to lack their undesirable side effects of blurred vision, constipation, dry mouth, and sexual impotence.

It is too early to determine whether JB 516 itself will be of value against hypertension. Only long usage will show whether it may have its own side effects. But the findings indicate that MAO inhibition may represent a promising new approach to the treatment of hypertension.

MAO inhibitors have also been found by Drs. Darwin Prockop and Parkhurst Shore, working under the direction of Dr. Bernard Brodie, to block the convulsions that result from electric shock and the stimulant drug Metrazol in animals. Because the convulsive response to these agents has been a reliable test for screening anti-epileptic drugs in the past, these findings give hope that MAO inhibitors may be useful against the convulsions of epilepsy. All of three MAO inhibitors studied blocked the electroshock and Metrazol seizures in animals, but JB 516 was again the most effective. With all three, the anticonvulsant effect was shown to be mediated by a rise in the brain amines.

Diagnosis of Virus Diseases

The development of a new method which enables medical authorities to diagnose more quickly such infectious virus diseases as influenza, measles, mumps and chickenpox has won for its originator one of the nation's top honors in the field of public health.

Dr. Albert H. Coons, visiting professor of bacteriology and immunology at the Harvard Medical School and Career Investigator of the American Heart Association, received the eighth annual Kimble Methodology Research Award at the Conference of State and Provincial Public Health Laboratory Directors in St. Louis.

Dr. Coons' method uses a fluorescent dye and ultra-violet light to search out infectious disease viruses.

The key to the work which Dr. Coons and his associates began in 1941 is the fact that antibodies formed in the body to combat disease are specific—for example, an antibody against influenza will react only with an influenza virus. Such antibodies may be tagged with a fluorescent dye so that they will glow under ultra-violet light.

To find a cell infected with a virus such as influenza, serum containing tagged influenza antibodies is put on a slice of tissue. The antibodies will adhere only to the influenza virus. When made to glow under a microscope, the presence of the specific virus is not only detected but accurately located within the cell.

The importance of Dr. Coons' method is the fact that the building blocks of all living things, and the chemical processes they are able to carry out, depend on complex chemical substances which often can only be sorted out by the specificity of antibodies. A labelled antibody, therefore, can search them out and place them in the spotlight of the scientific eye.

Home and Industrial Accidents

In home accidents, which is the most dangerous room in the house? Over 50 per cent of fatal home accidents occur in the bedroom, according to Parke, Davis and Company in its publication for physicians. This figure is more than three times higher than the accident rate in the next most dangerous areas, the living and dining rooms.

In industry, coal-mining remains the most dangerous occupation, although coal-mining injuries have decreased 64 per cent in the past eight years. Injuries incurred in the manufacture of railroad equipment carry the greatest danger of permanent disability, followed by injuries to employees in automobile manufacture. Most industrial injuries, however, involve only temporary disability.

In both industrial and nonindustrial accidents, there seems to be a diurnal cycle.

The publication reports on a study showing that the industrial accident rate was highest at 10 a.m. and again at 3 p.m. during the day shift, and in the first few hours of work during the night shift. Another study of nonindustrial accidents showed that late afternoon, from 3 to 5 p.m., and late evening, from 8 to 11 p.m., were the times when nonindustrial accidents reached peaks.

Who takes care of the accident patient? The general practitioner sees more than 60 per cent of all accident patients, although they account for only about 10 per cent of his time as compared to more than 40 per cent of the orthopedist's time.

Financially, accidents impose a tremendous burden, costing the nation $11.2 billion annually. Accidental deaths have been responsible for 8 to 9 per cent of life insurance death claims each year since 1950, being exceeded only by claims resulting from death due to diseases of the heart and cardiovascular-renal system, and to malignant neoplasms.

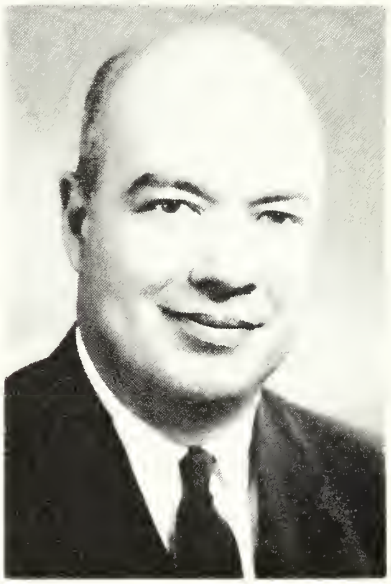
During 1957, there were 1,300 fewer highway traffic fatalities than in the previous year.

PRESIDENT'S PAGE

DEAR DOCTOR:

This year begins the second century of existence of the Kansas Medical Society. What better time, then, to glance back into the past and look into the future?

Our society's history is glorious. Many Kansas doctors have made their mark on the national and world medical scene. Our leaders have been wise and have charted the organization safely over many troubled waters. We have a proud heritage.



Kansas and American medicine face an uncertain future. Social and economic changes have occurred which are not to our liking. Legislation is pending which will further alter the "free enterprise" system of medicine we cherish. Only by concerted effort may these changes be averted.

One of the difficult matters confronting your leaders is to know the wishes and desires of its members. Many of you will serve on committees and know intimately this phase of the Society's work. An expression from you requesting a committee appointment is earnestly solicited.

A prime objective of this year will be to acquaint our members with your officers' problems. In turn, we wish to be informed of any constructive plan you have to suggest for society action.

An attempt will be made to indoctrinate and welcome new members. Your help in this matter is requested. Encourage your young colleagues to take part in medical society functions. Acquaint them with the functions and ideals of the Kansas Medical Society. They are the leaders of the future.

Your acceptance of committee chairmanships and appointments has been most heartening. Your ideas and help, to make this 101st year a constructive one, will be most appreciated.

Fraternally,

Glenn R Peters M.D.

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Envenomation in Kansas

The Poisonous Varieties of Animals in the State

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The problem of poisoning from animal bites is not so serious in Kansas as in the southwestern states, particularly Arizona,[1] but Kansas is surely not without hazards in this respect. In addition to six poisonous snakes, we have the black widow spider and many less serious offenders, all capable of bringing the patient to the physician with a "bite." The purpose of this paper is to list the poisonous animals which occur within the borders of the state and to discuss the therapy of their bites or stings. A secondary purpose is to note those venomous animals which are not native to Kansas, although mistakenly thought to exist here. The animals concerned will be only those with a true venom capable of causing significant distress to the victim. Animals serving only as disease vectors or mild parasites are not considered.

Although each year more people die in the United States after being struck by lightning than from snakebite, a nonfatal and frequently nonvenomous bite is still good front page copy for most newspapers. Morbid interest and at times hysterical fear concerning snakes are certainly the bases for this notoriety. Snakebite is something from which people expect to die and any physician who has been presented with this problem is aware of the extreme anxiety shown by the victim or his relatives. This anxiety is present even after bites from nonvenomous species and often leads to unnecessary and perhaps dangerous antisnakebite therapy.

Each year 30,000 to 40,000 people die from snakebite.[2, 3] Of these deaths 15,000 are in India. Statistics for the U.S.A. have changed markedly during the past 30 years. Previous papers reported 2,000 to 3,000 poisonous snakebites yearly with a mortality of 10 to 35 per cent.[4, 5, 6, 7, 8] The 1950 statistics, however, showed only 51 deaths from "venomous animals and insects." At least half of these were probably from snakebite.[2] The total number bitten remains unchanged with a resultant mortality of under 3 per cent. A recent report by Parrish revealed only 71 deaths from 1950 through 1954, so the mortality continues to fall.[9,2] Venomous animal bites are not reportable in Kansas so records of these deaths due to animal envenomation are not kept and the statistics for this state are unknown.[9]

The significantly venomous animals of Kansas are listed and therapy for their bite or sting is discussed. The importance of the proper therapy and the dangers of unnecessary therapy are emphasized.

Kansas Snakes

All types of poisonous snakes are represented in the U.S.A. with the exception of the true vipers. Those groups found in this country are the elapids (coral snakes), sea snakes (one species described off the southern California coast), crotalids or pit-vipers (rattlers, copperhead, and water moccasin), and the rear-fanged snakes.[10] Only the last two groups are native to Kansas. There are no coral snakes in or near Kansas. No Kansas snake has red, yellow, and black rings encircling the body so there should be no chance of confusion with a coral snake, as can happen elsewhere in this country.

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The rear-fanged snakes are of passing interest only. These snakes have some larger grooved teeth in the back of the upper jaw. The venom from the poison glands in the upper jaw is delivered through these grooves to the victim. The only rear-fanged snake dangerous to man is the boomslang of Africa. A few species in the southwestern U.S.A. can cause some local pain and swelling[1] but the species in Kansas have mouths too small to bite a human.[11] These three species are the slender tantilla (Tantilla gracilis), black-headed tantilla (T. nigriceps), and the spotted night snake (Hypsiglena torquata).[11]

The pit-vipers are represented in Kansas by six species. These are the copperhead or highland moccasin (Ancistrodon contortrix) found only in the eastern one-third of the state; the massasauga or swamp rattler (Sistrurus catenatus) found statewide except for the northwest quarter; the western diamondback rattler (Crotalus atrox) described only from extreme southern Kansas; the timber rattler (C. horridus) in the northeastern one-sixth of the state and along the extreme eastern border to Oklahoma; the prairie rattler (C. viridis) found statewide except for the northeast quarter; and, finally, the water moccasin or cottonmouth (Ancistrodon piscivorus) which has been recorded only from the Neosho River at Chetopa in extreme southeastern Kansas. The many reports of seeing or being bitten by cottonmouths are usually describing the common water snake (Natrix sipedon). This is a similarly marked, heavy bodied, non-venomous water snake which frequently bites and which is found statewide. Further description of these species is not within the scope of this paper. A recent, excellent monograph covers all the reptiles of Kansas and should be available to each physician.[11]

Snakebite Indentification

The question of therapy for snakebite depends primarily on one point: Was the snake poisonous? Too often the victim does not or cannot bring the snake with him for identification. Occasionally no snake was actually seen. Although the teeth marks of poisonous and non-poisonous snakes are distinctly different,[12] this distinction depends on a good bite, which may not be the case. In addition, serious poisoning can occur with a one fang bite.[13] The question of poisoning is not difficult to resolve, however, because of the nature of the pit-viper venom. If the snake is brought in, certain characteristics will identify it as a venomous species.[90] Any rattle will be obvious. All poisonous snakes in Kansas have an elliptical pupil as opposed to the round pupil of harmless species. The pit-vipers have a deep pit between the eye and nostril. If the head should have been crushed, distinction can be made by the type of plates on the ventral surface of the tail. The tail begins at the anal opening. In pit-vipers, most of the plates from the anus to the tip of the tail will be in one row whereas these plates, in harmless snakes, will form two rows. Le Conte's snake (Rhinocheilus lecontei) is the only exception to the last statement. It is a harmless, docile snake with the plates in a single row. However, it is unlikely it would be confused with a poisonous species.

Pit-viper venom is a neutral or slightly acid, clear yellow liquid with a specific gravity of 1.030 to 1.050.[6] It is a complex mixture of proteolytic enzymes, neurotoxin, bacteria, cell detritus, various proteins, and electrolytes.[8, 14] The neurotoxin serves to kill the prey and the proteolytic enzymes begin digestion even before the victim is swallowed. The neurotoxin of Kansas snakes is of minor importance except in cases of massive poisoning. Venoms have been the subject of over 6,000 papers, which leads to a confusing terminology for its many components. The composition of snake venom varies from species to species and even within a species depending upon the snake's nutrition, age, recent hibernation, etc. The essential difference between the Kansas pit-viper venoms is in the amount and potency of proteolytic enzymes. These enzymes have many functions: locally they digest tissue and destroy endothelial linings of blood vessels, leading to extravasation of blood, pain, and edema; hyaluronidase in the venom allows the spread and subsequent lymphatic absorption of these enzymes to give widespread endothelial damage, particularly to mucosal and renal vessels; the proteolytic enzymes can also deplete the blood of fibrinogen either by changing prothrombin to thrombin or by the direct change of fibrinogen to fibrin intravascularly.[7, 19] This last function has been used in medicine as a local hemostatic but when given systemically, it leaves the blood free of fibrinogen and thus unable to clot. Lecithinase in the venom combines with lecithin in the victim's tissues to form lysolecithin which is a cardiotoxin and a potent hemolytic agent. Lecithinase and other enzymes can cause the release of histamine in the body but the significance of this is debatable. The combination of all of the above functions leads to marked local reaction with severe pain, edema, bleeding and ecchymoses. These findings progress locally until systemic absorption occurs with the addition then of nausea, vomiting, giddiness, mucosal bleeding from the nose, gastrointestinal, and urinary tract; generalized ecchymoses, often a subnormal temperature but occasionally fever, shock, exhaustion, coma, and death.[14] The severe local pain will usually be present immediately and always within the first fifteen minutes. Edema and, usually, oozing of blood from the fang marks plus local ecchymoses will be present within 30 minutes. If these findings are not present within these time limits, no venom was injected. This signifies the snake was not of a venomous species or, if it was, no venom entered

the victim. The latter occurrence is not too uncommon because of the many factors involved with a successful bite.[20] A third possibility is the extremely rare occurrence of direct intravenous injection of venom which usually removes the patient from the province of the physician.[1, 8, 15-18]

Snakebite Therapy

If it is decided the patient was bitten by a nonvenomous snake, the treatment is the same as for any puncture wound. It should be carefully cleaned, an antiseptic applied, and tetanus prophylaxis used.

Therapy for pit-viper bite is a much debated point at the present time. A few years ago there would have been no doubt that treatment consisted of tourniquet, incision, suction, and antivenin. This basic treatment was used for years with success and, without antivenin, was used for several hundred years previously with fair success. This may only mean that most people recovered from snakebite in spite of the treatment. Apparently this still happens because victims continue to recover in spite of the recently widely publicized L-C (ligature and cryotherapy) treatment as advocated by Stahnke and others. The L-C treatment consists of an occlusive tourniquet just proximal to the bite and immediate chilling of the bitten extremity. The tourniquet is removed shortly after the extremity is chilled and is not reapplied. The rationale is that bringing the tissue temperature rapidly down to 4 to 7° C inhibits the enzymatic and bacterial action and thus prevents local damage while the venom is slowly detoxified systemically. Chilling is obtained by placing the bitten extremity in a mixture of water and ice. It may be kept in this mixture for several days depending on the severity of the bite. Because few people have ready access to ice while camping, Stahnke has recommended the emergency use of ethyl chloride spray to frost the bitten area until ice can be obtained. Others have used Frigiderm®[22] or freon gas for the same purpose. The proponents have many arguments for this method as opposed to the "cut and suction" school, and on superficial examination these arguments seem to have merit. Now that more results are available, however, the L-C method has not provided less morbidity but frequently has caused more. In many cases the ice water has been the apparent direct cause of extensive sloughs. No well controlled series have been seen inasmuch as most of these patients have also received incision, suction, and antivenin in addition to refrigeration. Others have tried to compromise by using only moderately cold temperatures, by means of ice bags, to implement the usual methods of incision, suction, and antivenin. Their results have been equivocal.[13, 21, 28, 52]

The main objectives of snakebite therapy are to prevent death and to minimize local damage. Most bites do not result in serious local damage unless the tissue has been further injured by injudicious local care such as injecting potassium permanganate, freezing with ethyl chloride or ice, or any of the numerous other means of treatment that have arisen over the years. Swartzwelder's 306 cases from Charity Hospital in New Orleans showed local complications only from some of the strange first aid methods employed. In nine cases amputations were necessary because a tourniquet was on too long or too tight. Of these 306 cases, only two died. Woods's 200 cases from Virginia had only four local sloughs and three deaths. Again, the only serious slough was from poor local therapy.[26, 29, 30]

The "cut and suction" method was re-evaluated objectively over thirty years ago by Dudley Jackson in a series of dog experiments. These demonstrated the bases for the logical treatment of snakebite. He showed significant amounts of venom could be recovered at the site of injection 24 hours after the bite and much of this could be removed by incision and suction. He also demonstrated that venom migrated through the tissue spaces until it was diluted enough to be absorbed by the superficial lymphatics. It was then carried by the superficial lymphatics until they communicated with the deep lymphatics, at which time the poisoning became systemic. This communication with the deep lymphatics does not occur until the superficial lymphatics reach the axilla or the popliteal, thigh, and inguinal areas of the leg. These experiments suggested that by blocking only the lymphatic, not the venous, flow, and by incision and suction, the poison-rich edema fluid could be removed locally thus minimizing systemic effects and controlling local damage.[31-33]

These techniques have proven themselves through the years and have only been modified recently. The treatment I will suggest is a summary of this basic therapy plus the use of some newer agents. Excluding the very rare intravenous injection of snake venom, probably no one should die today with proper treatment.

In Kansas, identification of the snake as a copperhead is quite helpful. This snake probably accounts for most of the bites in eastern Kansas and since it is the least venomous of the pit-vipers, the majority of cases would probably recover without any treatment.[34] Other factors to be considered are size and health of the person bitten. Children, because of their smaller body mass relative to the amount of venom, should always be treated more vigorously. Even a copperhead bite might have a fatal result in a child. In the United States, the water moccasin, prairie rattlesnake, western and eastern diamondback rattlesnakes account for 95 per cent of the deaths and of that group the western diamondback (C. atrox) causes as many as the rest combined.[35] Identification of the snake as a prairie rattler, western diamondback

rattler, or water moccasin should call for even more intensive therapy. Wood, Hoback, and Green classified snake bites into three groups of minimal, moderate, or severe poisoning depending on the severity of the presenting signs and symptoms and on the course taken during the first 12 hours.[36] This was an excellent way to evaluate types of treatment as they were doing, but 12 hours is too long to be of practical value in deciding the immediate treatment. The treatment of snake bite is much like that of diabetic coma in that certain things must be done immediately and other things done later depending upon the clinical course.

Treatment Procedure

Steps in treatment are outlined as follows:

1) Hospitalize the patient. Serious and sudden relapses can occur even after several hours of apparent recovery.[1, 14]

2) Remove the usual tourniquet and reapply so as to obstruct only the lymphatic flow. This is usually tight enough to distend the veins distally but loose enough to allow your fingers to slide under the tourniquet. The tourniquet will be more effective over one bone instead of two so, in the case of a hand bite, it can be applied just above the elbow. Because of the popliteal communications with the deep lymphatics, it should initially be applied below the knee with a foot bite. This tourniquet, if properly applied, will not interfere with circulation but to be certain of this, it should be loosened for 30 to 60 seconds every 20 minutes. It may be moved proximally as the edema advances and may be removed entirely after the edema stops advancing and after the incision, suction, and antivenin steps are completed. If there is an increase in systemic signs after removing the tourniquet, it should be reapplied.

3) Immediate local incision. These incisions should usually not be made directly into the fang marks because this increases local damage, causes poor healing, and, usually, the venom has already spread from the injection site. If, by chance, the victim is seen within a few minutes of the bite, before there is much edema, incision of the fang marks would be justified. Three to five linear incisions ¼ inch long and ¼ inch deep should be made at the proximal edge of the edema. It is not necessary to make cruciate incisions since these heal poorly and edema will cause linear incisions to gape satisfactorily. The purpose of the incision is to reach the subcutaneous space so the venom-rich edema fluid may be removed. Two or three incisions may be adequate with a minimal bite and a minimal copperhead bite in a healthy adult may require none at all. A serious bite will require many incisions. If the edema is progressing up the extremity, successive incisions should be made every four to six inches on up the limb. These are made just proximal to the edema front, in a staggered row, with the incisions one inch apart. If the edema encircles the limb, the row of incisions should also encircle the limb. In a severe case the patient may have encircling rows of incisions every four to six inches from the ankle to the groin.[33] Dudley Jackson felt it was better to make 50 to 100 incisions than to undertreat a single case. Fortunately the cases requiring extensive incisions will be quite uncommon. Some writers have mentioned that excision may occasionally be necessary with a severe bite. Animal experiments have not shown greater survival with immediate excision, and the question of who should have immediate amputation of an extremity would seem to be impossible of answer because of the many variables involved.[37]

4) Suction for 20 minutes every hour. This may be done with the usual suction cups, breast pumps, or even a Pavex boot.[38] Mouth suction should be avoided. Poisoning has occurred through a carious tooth. Wounds will close rapidly if kept dry. Cool, moist soaks of hypertonic saline or magnesium sulfate will keep them open and maintain drainage.

5) Keep the bitten extremity in a slightly dependent position and at complete rest. Elevation in these cases can only increase the spread of venom toward the trunk. Any movement, excitement, or substance such as alcohol only serves to increase the interchange of tissue fluids and thereby increase the lymphatic absorption of the venom. For this same reason, heat is not recommended. Ice packs will relieve pain and, when carefully used, are helpful. Immobility of the bitten area, which has occasionally been a neglected point, is assuming more importance in snakebite therapy. One series showed that immobilization alone was more beneficial than tourniquet, incision, or suction. In view of these findings, the use of a splint may be justified.[39]

6) Type and crossmatch for at least 1,000 cc whole blood. This is an emergency measure because it is frequently impossible to do after the venom reaches the systemic circulation and hemolysis occurs. A urinalysis and hemoglobin should be obtained early for comparison with values later. Albuminuria and hemolytic anemia can occur with systemic spread.

7) Antivenin in adequate amounts. The previous Antivenin (Nearctic Crotalidae), Wyeth, was replaced in 1954 by a much improved product, Antivenin (Crotalidae) Polyvalent (North and South American Antisnakebite Serum), Wyeth. The former antivenin was a liquid, was stable only one year, came in dose of 15 cc and was associated with frequent reactions to the contained horse serum. Its use was also limited only to North American pit-viper bites. The new product comes in a 10 cc dose, is lyophilized and stable for five years, and is more purified with a much lower incidence of serum reactions. It is made by hyperimmunizing horses against the venom of the

western and eastern diamondback rattlers (C. atrox and C. adamanteus), the tropical rattler (C. durissus terrificus) and the fer-de-lance (Bothrops atrox). Antivenin with sufficient potency against these four venoms is also potent against all other North and South American pit-vipers. As far as Kansas snakes are concerned, one ampule of the antivenin will neutralize between 10 and 20 mg of the dried venom. The average mature snake can be milked of 10 drops of venom each drop containing 22 mg of dried venom. The minimum lethal dose of rattlesnake venom in man is 20 to 30 mg. Even though the snake probably never delivers his entire supply of venom, it frequently delivers 25 to 75 per cent of it. By simple calculations, it can be seen that one ampule of antivenin is frequently not enough although this is the usual dose given. This is particularly true of the western diamondback which can deliver 200 mg or more in a bite. The average copperhead can deliver 45 to 60 mg, the water moccasin 90 to 150 mg, and the timber rattler 42 to 90 mg per average bite. The toxicity per milligram of dried venom varies, with the diamondback, timber rattler, and water moccasin being about the same. The copperhead is much less, which accounts for the difference between copperhead and timber rattler bites although the amount of venom delivered is about equal. The average ejection per bite by the prairie rattler and massasauga is unknown although their venom is probably the most toxic per milligram. The massasauga has such short fangs that successful bites are not frequent but deaths do occur.[6, 8, 18, 40-45]

If there is reason to believe that the envenomation was minimal, the antivenin might well be deleted. This is often a difficult decision so the safer course lies in giving antivenin after checking for horse serum sensitivity. If the patient proves to be sensitive to horse serum, and the bite was more than minimal, the antivenin can still be given using the usual desensitization routine and preferably after giving 100 mg of hydrocortisone intravenously. Adrenalin should be immediately available if needed. The hypersensitive patient should then receive 25 mg of cortisone four times daily for the next three or four days and then in decreasing doses for a total of eight to ten days. This routine has prevented severe serum reactions in known hypersensitive people.

One ampule, 10 cc, is given intramuscularly. Never inject it into the area of the fang marks or in any area such as a digit, foot, or hand which is already edematous. The additional fluid only further embarrasses circulation.

Injection of one ampule subcutaneously in the proximal edge of the edema has been advocated and would probably neutralize some of the venom locally. The patient must be evaluated frequently and additional ampules given intramuscularly every 30 to 60 minutes as long as the edema is advancing. In severe cases with systemic symptoms it can be given intravenously. For children in shock, it can be given intraperitoneally if veins are not available. Most writers have not had to use more than three ampules with any one case but some have described using ten or more ampules in a severe poisoning. Children should receive at least two ampules initially.

8) Give antibiotics, tetanus, and gas bacillus antitoxin. Many venoms are contaminated with tetanus and gas bacillus so penicillin is indicated for one week after bite. Gas bacillus antitoxin and either tetanus antitoxin or a toxoid booster should be given. If the patient has not been immunized against tetanus, the series can be started now if the toxoid and antitoxin are given in separate arms.

9) Give adequate fluids and electrolytes. Because of the toxicity and edema, these patients can develop an intravascular fluid deficit which parenteral dextrose or normal saline will correct. This usually develops after the first 12 hours from the bite and is manifested by hypotension and drowsiness which could be confused with the systemic effects of the venom.

10) Usual supportive methods. This includes such things as blood and vasoconstrictors for shock, keeping patient warm, oxygen as needed, and the use of corticosteroids and ACTH. At first cortisone and ACTH were reported as specific for snakebite. This has since proved to be incorrect. Because of their supportive action, however, they have been lifesaving on many occasions. They also help control hemolysis and may lessen the amount of edema. An important action is minimizing reactions to the foreign snake or horse protein. Their use is rational so most moderate and all severe cases should receive them in adequate dosage. Vigorous use of these "usual supportive measures" has been the main reason for survival of some snakebite victims with serious bites.[46, 47]

11) Control pain. The pain is frequently very severe and opiates may be necessary. The use of opiates in the presence of a potential neurotoxin requires caution. Although it has been stated that Demerol[10] is contraindicated in snakebite, it is noted that these experiments were done with scorpion venom in rats and cannot be applied to the problem of snake venom in humans.[24, 48]

12) The proteolytic enzymes in pit-viper venom can occasionally deplete the blood of fibrinogen leading to a hemorrhagic state difficult to control. This is much like the syndrome of post-partum afibrinogenemia after abruptio placentae, and the treatment should be the same. The use of either whole fresh blood or intravenous fibrinogen in doses of 4 to 10 gm should be tried.

13) The phosphatidases in the venom cause the release of histamine. The significance of this is unknown. It was used to explain the shock associated

with the bite, but subsequent work does not bear this out. Benadryl[16] as the only treatment for snake bite in dogs has apparently worked well, but Schöttler has shown that antihistamines may be dangerous in humans.[50, 51] Their beneficial effect is probably secondary to the sedation they induce. Furthermore they cause the blood pressure to become more labile, which is a doubtful procedure in a situation potentially associated with shock.

The above suggested therapy is that used by many authorities. The main objection to it is the occasional necessity of several incisions with the resultant scarring. Very recently, Wyeth revised the circular accompanying their antivenin.[94] The revised circular states "that there is no value in incision and suction for envenomation." It stresses the adequate use of antivenin. This change is apparently based on animal experiments, the clinical impression of some authorities, and one case report.[39, 95] The case report concerned a probable timber rattler (C. horridus) bite. The patient received incision and suction but did not improve until adequate antivenin was given. This, of course, is no argument against incision and suction, but rather an appeal for adequate antivenin. Antivenin alone would probably be satisfactory for most copperhead bites but might be quite inadequate for a more venomous species. There is still no good evidence that incision and suction are not important parts of the proper therapy. It is to be hoped that serotherapy by itself will ultimately prove to be adequate, but controlled human series are not yet available to justify this approach. This is particularly true in Kansas when dealing with envenomation by the water moccasin and prairie, timber, or diamondback rattler.

Other Poisonous Animal Bites

The black widow spider (Latrodectus mactans) is common in Kansas. This and related species are worldwide in distribution. They are universally feared and are known by many popular names throughout the world. Some of these names are "la malmignatte" (Italy), "karakurt" (Russia), "katipo" (Australia), and "mena vodi" (South Africa and Madagascar). Regionally in the United States, it is called the hour glass, shoe button, T dot, T, or Po-ko-moo spider. The latter name is of American Indian origin. The spider may be identified by the characteristic red markings on the ventral surface of the otherwise jet-black, globose abdomen. This marking is often described as hour-glass shaped but variations do occur. There is frequently a second red mark ventrally at the posterior tip of the abdomen, dorsal to the spinnerets. Immature females have a broken row of red spots up the midline of the back. This is in addition to the typical ventral markings. The legs have a spread of 1½ to 1¾ inches and the abdomen, a width of ⅜ inch. No other Kansas spider has this appearance. It can also be recognized by its characteristic web, spun in corners or crevices, and made up of coarse threads crossing in irregular angles and planes. The male is also poisonous but is rarely seen. It is much smaller and has orange yellow stripes on the abdomen. There are no reports of poisoning by the male.[53, 56]

For many years it was believed that the black widow spider was not poisonous, in spite of reports to the contrary. However, there remains no doubt of its venom now. Thorp and Woodson collected 1,291 cases with 55 deaths or a mortality rate of 4 per cent. The mortality is less at present, with more specific treatment, but it still compares favorably with snake-bite mortality. The venom is manufactured by two poison glands in the cephalothorax and delivered to the victim through the two hollow chelicerae located above the mouth parts. It is a thick, translucent, oily, lemon-yellow fluid with an acid reaction. The venom is a toxalbumin which is 15 times as potent as rattlesnake venom. Fortunately it is delivered in much smaller amounts. Like most animal venoms, it has many properties. The most striking of these is its ability to stimulate the myoneural junction. This action accounts for most of the symptoms and is probably due to abnormal activation of acetylcholine. It also can directly damage peripheral nerve endings. The venom may liberate histamine from the lungs, contains a potent hemolysin, and has a direct toxic action on the heart. As with some venomous fish, the eggs of this spider are poisonous and the female is most dangerous when filled with eggs.[53-63]

Symptoms of a Black Widow Bite

The symptoms are characteristic and often quite severe. A common location of the bite is on the penis or scrotum sustained while visiting the privy. There is usually a sharp, stinging, burning pain locally. This pain may last until systemic symptoms occur, be transient, or not be noticed at all. Blair allowed himself to be bitten on the little finger and vividly describes the subsequent course. He divided it into three stages as follows:[53]

1) Lymphatic absorption. There is acute pain in regional tissues and the pain spreads centrifugally. Regional lymph nodes become tender and the whole extremity may have a dull, numb, aching sensation.

2) Vascular dissemination. This usually occurs within an hour of the bite, but occasionally the interval may be longer. There is usually a mild headache. The pulse becomes slower and weaker. This is the cardiotoxic action of the venom and EKG changes have been described. The most striking findings are the very severe muscular spasms which are extremely painful. They often start in the epigastrium and spread rapidly to the rest of the body, being most severe in the abdomen, legs, and back. The spasms

cause the legs to be flexed at the hips and knees and drawn up to the abdomen with the arms folded on the chest. Lying flat is intolerable. The blood pressure is often elevated with a slow pulse. There may also be salivation, constipation, urinary retention, delerium, cyanosis, nausea, vomiting, dyspnea secondary to intercostal muscle spasm, anxiety, cold perspiration, insomnia, increased tendon reflexes, increased spinal fluid pressure, conjunctivitis, oliguria, and hyperemia of face. The abdomen is boardlike but is not tender to palpation, and this should be a clue to the diagnosis. When this finding is combined with a slow pulse and perhaps some hypertension, the diagnosis should be more obvious. The stage of vascular dissemination usually lasts 12 to 48 hours.

3) Elimination. All the above symptoms subside. Some albuminuria and facial edema may develop secondary to a toxic nephritis in this stage. Commonly there is slight fever and leukocytosis. An interesting finding is that as the patient improves, the severe cramps subside centrifugally so that the last symptom remaining may be cramps or a burning sensation in the feet. It may take 1 or 2 weeks before all symptoms are gone. Almost all deaths are in children and are from a severe toxic nephritis or from collapse secondary to the spasms and convulsions.[64]

Treatment

Treatment has been quite varied and imaginative in the past. Bogen lists 75 agents used at one time or another.[57] More recently, treatment has become fairly well standardized although different methods still appear. Three things are the mainstay of therapy and they are as follows:

1) Specific antivenin. Antivenin (Latrodectus mactans) Lyovac, Merck Sharp and Dohme, is available in a lyophilized form which is reconstituted to a dose of 2.5 cc. This also is obtained from hyperimmunized horses and the patient must be skin tested with horse serum before using it. In this case, if the patient is hypersensitive, it would be better not to administer the antivenin unless the victim is critically ill. Other methods of therapy would probably be satisfactory. All critically ill patients should receive it, however, and the use of corticosteroids, as with snake antivenin, would help control or prevent serum sickness. The dose is 2.5 cc given intramuscularly. This takes effect in a few hours and one dose is usually adequate. If symptoms are still significant after four to six hours, the 2.5 cc dose is repeated one time.[55, 60]

2) Intravenous calcium. This old standby apparently can depress the myoneural junction. Results are often dramatic with immediate relief of spasms and pain. It is best given as 10 per cent calcium lactate or calcium gluconate. Calcium chloride solution is too irritating to the vein wall and will cause a slough if it seeps into the tissues. The average dose of calcium salts is 10 to 20 cc of a 10 per cent solution. Many say the first few cc should be given fast enough to cause flushing before maximum benefit can be expected. A proportionately smaller dose is given to children. Pain relief usually lasts for a few hours and the injection may be repeated as often as necessary. Calcium gluconate may be given intramuscularly if veins are not available.[65]

3) Hot baths. This is often as effective in relieving pain as other methods and has the advantage of no risk to the patient. It may be used freely.[66]

Rarely the above methods are not successful and other agents have been used with varying success. The careful intravenous administration of 60 units (9 mg) of Tubocurarine solution, Squibb, has relieved severe intercostal spasm and opisthotonus when other therapy failed. This was repeated in four hours as a three-hour drip of 60 units in 1,000 cc normal saline and was successful. Magnesium sulfate intravenously has had results similar to calcium salts, but entails more risk. Cortisone and ACTH have been used as the sole treatment with reportedly favorable results; however, subsequent reports were less enthusiastic. Neostigmine methylsulfate in a dose of 1 mg intramuscularly, followed by atropine gr 1/150, has appeared to help when other agents failed. The rationale of this is not apparent. Convalescent serum and spinal tap with removal of some fluid have had their advocates with varying success.[47, 53-68]

The use of opiates or barbiturates for the pain and anxiety is usually unnecessary where more specific measures are available. The use of barbiturates may be unavoidable in controlling convulsion but they should be used cautiously in view of the neurotoxicity of the venom. Replacement of water or electrolyte deficit is indicated if much vomiting or sudoresis occurs. Vigorous supportive measures for shock may be rewarding.

The symptoms of this bite may masquerade as pleurisy, pneumonia, tetanus, tabetic crises, food poisoning, hysteria, and many other things. The most important differential diagnosis will be between spider bite and an acute abdomen. These symptoms simulate an acute abdomen so closely that many unnecessary laparotomies have been performed for suspected appendictis, perforated peptic ulcer, etc. The finding of a boardlike abdomen which is not tender to palpation should give a clue to the correct diagnosis. The sudden relief of symptoms after 10 cc of 10 per cent calcium gluconate intravenously will often resolve this problem.[55, 63]

The area of the bite usually does not become necrotic unless ill-advised local therapy was used. A local antiseptic will prevent secondary infection and nothing else need be done. A rare bite, however, will develop local necrosis which sometimes becomes sig-

nificant and requires particular care. Incision and tourniquets have no place in the treatment of black widow spider bite.

Brown Spider

The "brown" spider of the midwest is the other significantly poisonous spider in Kansas. It is a member of the family Loxoscelidae, the false hackled bandspinners. The spiders in this family are yellow or brown in color, spin a large, irregular web, and live under stones or bark and in caves.[91] The species in Kansas is probably Loxosceles reclusus, which is a small to medium sized brown spider. Poisoning from its bite was first described from Kansas in 1929. It was redescribed from Missouri in 1957. The venom contains a powerful necrotizing agent resulting in local necrosis and slough. The bite itself is a sticking sensation followed by rapidly increasing local pain. The site of the bite first develops a wheal with two small necrotic spots in the center where the chelicerae pierced the skin. The area then becomes violaceous and subsequently black and dry. It usually sloughs after a few days or a week, leaving a deep, sharply defined, granular area surrounded by raised areas of healthy tissue. The slough may be small and heal rapidly in a few days or may last several weeks and heal slowly. In some patients, a systemic reaction occurs a few hours after being bitten. This consists of a generalized scarlatinaform rash, slight fever, tachycardia, and restlessness. This subsides in a few days and requires no treatment except perhaps antihistamines or aspirin. The local slough may require prolonged therapy before healing occurs but rarely will require grafting.[69, 70]

A related species, L. laeta, occurs in South America and is responsible for "gangrenous spot" or cutaneous arachnoidism in Chile and Uruguay.

Tarantulas are occasionally found in Kansas. A rare bite is painful for a few hours and may show some local swelling and hypersensitivity to touch for a few days.[1]

Insect Stings

Not a year passes but a newspaper article reports someone "stung to death" by bees. Death from hymenoptera venom occurs either by overwhelming poisoning from multiple stings or, more commonly, by anaphylaxis in a hypersensitized person. About 75 per cent of those persons, such as beekeepers, who suffer recurrent stings, become relatively immune to the venom. This immunity persists as long as they receive a booster sting every month or so. Two per cent of such people, however, become hypersensitive and a sting may result in fatal anaphylaxis. There is not always a history of recurrent stings before the first anaphylactoid response. Some persons may become hypersensitive after one sting. Sometimes no definite history of a previous sting is obtainable although it was probably suffered in childhood and forgotten.[71]

The bee sting apparatus is 2.5 mm. long and consists of three barbed shafts surrounding the poison canal. This canal is connected with a poison sac which in turn receives its venom from an acid secreting gland. An alkaline secreting gland empties into the poison canal also and here the two secretions are mixed before injection. The composition of hymenoptera venom varies with the species but essentially contains the following substances:[17]

1) Histamine—in bee, wasp, and probably hornet venom.

2) 5-hydroxytryptamine—in wasp, hornet but not bee venom.

3) Acetylcholine—hornet venom is the richest animal source of this substance, being 3 to 10 per cent acetylcholine. It is absent from bee or wasp venom.

4) Protein-like substances—these are not enzymes, but appear to be quite toxic.

5) Enzymes such as hyaluronidase and phospholipase A. These are found in bee venom and the latter enzyme can form lysolecithin in the same manner as in snake venom.

These substances in various combination give rise to the four main effects of hymenoptera venom:[71, 72]

1) Hemolysis—from lysolecithin.

2) Hemorrhage—the coagulation time is increased and uterine bleeding or melena can occur.

3) Neurotoxicity—used by some species to paralyze its prey, but not of importance to man.

4) Histamine and serotonin (5-hydroxytryptamine) effect.

Treating the uncomplicated bee sting is not usually required of the physician and the local wheal disappears in 24 hours. Baking soda to the area helps although the rationale that it is neutralizing formic acid is not correct. Formic acid is absent from bee venom. Antihistamine lotion is also helpful. The sting should be removed and is done best by carefully scraping it out with a knife blade. Grabbing it with forceps only compresses the poison sac and instills more venom. This is a very important point when dealing with a hypersensitivity reaction. Stings in the mouth may cause enough swelling to require tracheotomy. A fatal dose of venom requires a great many stings unless the patient is hypersensitive. Five hundred stings have been fatal. Multiple stings cause a picture much like that of an allergic reaction with bronchospasm and marked generalized edema. The large amounts of venom may also cause intradermal and subcutaneous hemorrhage with hematuria, melena, and hematemesis. There is usually vomiting, diarrhea, and collapse. The treatment is supportive with epinephrine, oxygen, intravenous fluids, and corticosteroids. The steroids should be continued at least

10 days as a generalized urticaria often develops one week after the stinging. Most recover in a few days and deaths are mainly in children.

Some stings are followed by slight edema of the pharynx and uvula, which may be treated with oral antihistamines. The serious hypersensitivity reaction consists of sudden onset of a sensation of constriction in the throat, throbbing headache, flushed face, swelling of the upper lip, numbness and tingling in the hands, dyspnea, cyanosis, and collapse. Collapse can occur within 60 seconds and death within 15 minutes of the sting. The patient will be in severe shock with fecal and urinary incontinence, a rapid, feeble pulse, and profuse sweating. Autopsy has shown generalized petechiae, pulmonary edema, and congestion of the viscera. With such a rapidly developing hypersensitivity reaction, the most important facet of treatment is the speed with which it is given. There have been many cases reported where the patient appeared to be dead, only to respond to epinephrine. This is usually given in a dose of 0.5 cc of a 1:1,000 dilution of aqueous epinephrine subcutaneously. In an extreme case, 1.0 cc of a 1:100,000 dilution may be given intravenously. Intravenous Benadryl,® aminophylline, and hydrocortisone have been used with good results. One apparently fatal case in a child responded only after intravenous calcium gluconate, the other measures having no effect. The hypersensitive patient should carry a Syrette of epinephrine, or isoproterenol sublingual tablets, with him at all times.[72, 73, 88]

The honey bee is probably the main offender, but an occasional person will be hypersensitive to other hymenoptera such as wasps, yellow and black hornets, and yellow jackets. Desensitization with specific antigens, or a mixture of antigens if the species is unknown, should be attempted in all hypersensitive patients. Several techniques have been used with fair results. Success depends upon using an antigen derived from the whole insect and not just from the venom. Specific antigens are now available commercially.[73-75, 93]

Related to the wasps are the "velvet ants." These are members of the genus Dasymutilla, and there are at least seven species in Kansas. These are the 1/4 to 1 1/4 inch long, hairy, ant-like insects seen running on the ground in dry, sunny, or sandy places. The females are wingless. The color varies with dark bodies and white, yellow, golden, orange, or red hair. The females can sting severely and frequently do when stepped on with the bare feet. The reaction is the same as with bee sting. No hypersensitivity has been reported.[76]

The insect family Reduviidae is represented in Kansas by at least six species. They are known commonly as "conenoses," "masked hunters," "kissing bugs," "wheel bugs," "assassin bugs," and "Mexican bed bugs." They are small to large, stout insects with a narrow head and a short beak. They are usually brown or black. In California, Central and South America, their bite can transmit Chaga's disease but that is unreported from Kansas. The bite may be mild but is often severe with increasing local pain and swelling, intense itching, and occasionally generalized urticaria. Necrosis may develop at the site of the bite. The effects of the bite are variable. Most subside in 24 hours, but some have reported urticaria or residual tenderness at the site of the bite for many weeks. It has been suggested that the bite could prove fatal to a child but this has not been proven. Oral antihistamines and local warm, moist compresses are usually adequate therapy.[1, 70, 76, 77]

The blister beetle is well known in Kansas. The several species here are members of the family Meloidae. If this insect is crushed or injured and its body juices contact the skin, painful large blisters can form. This is due to the presence of cantharidin in their body juices. There is no antidote for this substance and care should be taken when opening these blisters as the vesicle fluid can cause more blisters. I have had best results by carefully evacuating the blister and applying an antiseptic such as Merthiolate® to the blister base. Unopened blisters subside slowly and frequently break forming more blisters.

"Urticating caterpillars" are a problem in some parts of the world. These are hairy caterpillars belonging to several species. Some of their hairs are barbed, hollow, and contain a mild venom. The hairs are loose and can blow into the face or elsewhere on the body, causing a severe dermatitis. More commonly, they are stepped on or handled, leading to a local urticarial dermatitis. The Maia moth (Hemileuca maia) and the Io moth (Automerus io) have this faculty in Kansas. Massive numbers of urticating caterpillars have caused schools to be closed in the southern United States. In Panama they have been associated with regional lymphadenitis and eosinophilia. The pain at first is severe, but lasts only a short time. It may be necessary to use codeine for the severe pain. Oral antihistamines have not been helpful.[76-79]

Several other Kansas insects are capable of biting, but the result is usually no worse than a bee sting and will frequently not require treatment. The giant water bug or "electric light bug" (Belostomatidae) and the back swimmers (Notonectidae) are two common water insects which bite. Rove bettles (Staphylinidae) have an irritating secretion. They occasionally fly into the eye causing a chemical conjunctivitis. Buffalo gnat, black fly, or turkey gnat (Simulium vittatum) may suddenly appear in a new area after their eggs are washed there by flood waters. They have a painful bite. They fly in swarms and can kill horses, mules, and cattle in a few hours from the combination of blood loss and venom. Bed bugs, mosquitoes, and fleas are usually of no consequence. Some persons, how-

ever, have a marked sensitivity to their venom and suffer recurrent, painful, pruritic bites. A common source of irritation for newcomers to the San Francisco area are bites from the human, dog, or cat flea. They are also plentiful in Kansas. After several bites, the person becomes immune and no longer is bothered. A few persons become hypersensitive and are in constant misery. Good results were obtained by desensitizing these people with an antigen derived from the whole bodies of the three species of fleas.[80]

The imported fire ant (Solenopsis saevissima richteri) is absent from Kansas so far. Since its introduction to the United States at Mobile, Alabama, in 1920, it has slowly spread and now has reached Arkansas. It has a very painful sting and can cause anaphylaxis.[81]

Other significant, non-insect arthropods are absent from Kansas. We do have a small scorpion with a mild sting but no dangerous species as is found in Arizona. The largest Kansas centipede is of no consequence. The non-venomous whip scorpion, much feared elsewhere in the United States, is not found in Kansas. A potentially dangerous tick does exist in Kansas. This is the common dog tick (Dermacentor variabilis). This species has caused canine paralysis in the northeastern United States. It has caused tick paralysis in humans in the Carolinas and Georgia. No case has been reported from Kansas yet. Tick paralysis is due to a specific neurotoxin injected by the female tick while she is feeding. The female is dangerous only at irregular times during the year. The bite is painless and causes an ascending Landry's type of paralysis. This ends in respiratory failure and death if the tick is not found and removed. This disease is found in the northwestern states, British Columbia, and in Colorado, where it is due to the Rocky Mountain woodtick(Dermacentor andersoni). This species is not found in Kansas. The treatment consists of removing the tick and administering artificial respiration, if necessary, until spontaneous respirations resume.[82-84]

Water Animals

Anyone who has been fishing in Kansas is aware of the sharp pectoral or dorsal spine on the catfish. Some species of the catfish family (Ameividae) have an actual venom apparatus. This consists of a poison gland at the base of the pectoral fin. It discharges its venom through a slit and movement of the fin allows it to flow down the pectoral spine. In addition, the dorsal spine is covered with a thin integument containing small ductless poison glands. Any break in this integument releases the venom. The venom is neurotoxic and hemolytic and causes a sudden severe burning pain which later radiates up the extremity. It may last 30 minutes to several hours. There is usually little local effect except when secondarily infected by dirt or slime carried into the wound. The wound should be carefully cleaned. Ice packs or a cooling lotion have helped the pain. There are several venomous species in North America, some reaching 12 inches in length. Their common name is "madtom."[85]

There are no venomous turtles anywhere, but turtles can be poisonous if eaten. The flesh of the Carolina box turtle (Terrapene carolina) is palatable but eating it is not without risk. These turtles eat mushrooms. They are not affected by the muscarine in some mushrooms and mushroom poisoning has occurred in man after eating the turtle. These are common turtles in Kansas.[11]

The skin secretions of some salamanders, toads, and frogs are very irritating to mucous membranes. Some contain poisons related to digitalis and are capable of killing small animals who eat them. No species in Kansas is significant in this regard.[11, 87]

There are no poisonous lizards in Kansas. Many have teeth and can bite, however.

Of the two venomous mammals in the world one exists in Kansas. This is the short-tailed shrew (Blarina brevicauda). The other is the duckbilled platypus of Australia. This shrew produces a venom in its submaxillary glands and delivers it to the base of the lower incisors. This extremely small mammal apparently uses it to disable mice and possibly to narcotize invertebrates. Although common, it is rarely seen. It is usually mistaken for a small mouse. It is of interest only because of its oddity, as no human fatality and only a few local reactions from bites have occurred.[86, 89]

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pHisoHex in Newborn Babies

For the Prevention and Control of Staphylococcic Skin Infection in Hospital Nurseries

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An increasing number of reports during the past two years of hospital epidemics of staphylococcic infection have served to focus attention upon a continuing medical problem: the difficulty of controlling infections, particularly those of the skin, among the newborn in hospital nurseries. Although published reports have dealt chiefly with large hospitals in which the infection quickly spread to many patients, the problem is one which must be faced also in hospitals of medium and small size in which facilities and personnel are limited.

To decrease both the mortality and morbidity of neonatal infections requires the simultaneous use of several proven technics. Some of them are more important than others but all are necessary for the overall accomplishment of attaining the goal of a marked decline or disappearance of neonatal skin infections.

Suggestions of the American Academy of Pediatrics[1] for dealing with this situation, issued in March, 1958, include such prophylactic and preventive measures as: redesigning of nurseries for rotation nursery, adoption of rooming-in procedures where space is available in obstetrical wards, isolation of prematures with individual sources of outside bacteria-free air for each incubator, scrupulous cleaning and decontamination of bassinets after each occupancy, control of dust, antisepsis of umbilical areas, frequent inspection for nasal carriage of staphylococcus among nursery personnel, and the use of deter-

A one-year study is reported in which pHisoHex baths were utilized for all 283 newborn infants passing through the nursery of a hospital is reported. The efficacy of this preparation in preventing skin infections, including those of staphylococcic origin, is confirmed. No skin sensitizations were observed. Minor rashes and skin irritations in babies cleared routinely without discontinuing the baths in any case. On the basis of our findings in the hospital, we are recommending continued bathing of infants with pHisoHex after discharge from the hospital.

gents containing 3 per cent hexachlorophene both for scrubbing of personnel who handle infants and for bathing the infants themselves.

The putting into practice of these recommendations adapted to local conditions has in general lowered both the morbidity and mortality of many types of infectious diseases in the neonatal period. However, the emergence of the fact of antibiotic-resistant staphylococcal infections of the newborn and the discovery that the organisms are spread not only by nursery personnel but by air transmission from infant to infant has focused attention on means of combating this situation.

Of all measures suggested, the one most easily put into practice is the washing of the skin of the newborn and all who come in contact with it with detergents containing hexachlorophene. Since infections can be borne to the infant by air and dust, as well as by handlers, it is also logical and more practical to place the greatest emphasis on creating a barrier on the skin surface, rather than the impractical complete asepsis of the environment. This paper is a report on the institution of this measure several months prior to the issuance of the suggestions by the American Academy of Pediatrics. Results have been observed over a one-year period and confirm both the advisability of the institution of this step as well as the practicability and acceptance by the nursing personnel and mothers.

pHisoHex,* a synthetic sudsing skin detergent composed of sodium octylphenoxyethoxyethyl ether sulfonate, lanolin cholesterols, and petrolatum, to which has been added 3 per cent hexachlorophene, was selected as the germicidal agent. It has been shown by Allers to be more effective in reducing hand bacteria on a schedule of a ninety-second scrub once or twice daily than is liquid soap when used for three-minute scrubs six or eight times per day. It is in wide use for wound cleansing and as a bacteriocidal agent in preoperative scrubs in hospital use as well as in private practice.

Considerable discussion preceded the institution of pHisoHex baths for newborn infants in our hospital because of rumors that its use had caused skin sensitization in some cases. However, an extensive search of the literature failed to confirm these rumors, but did reveal several well documented reports of its use in the newborn for the reduction of skin irritations and infections.

Farquharson,[7] in a five and a half month study in which pHisoHex was the bathing agent for 4,293 newborn infants, observed no single incidence of irritation even in prematures. It was noted that before the use of pHisoHex the nurses' hands became very sore and abraded from the frequent scrubs, and a nurse would have to be kept off duty until these areas cleared up. Using pHisoHex, nurses had no further complaints regarding skin irritation and there was no further difficulty in enforcing the rules regarding hand washing. Farquharson was able to lower the incidence of staphylococcal infections in nurseries from 6.5 per cent to 0.6 per cent by the adoption of this procedure.

Similar lack of irritation and sensitization to pHisoHex has been noted in a study of nurses assigned to routine newborn nursery duty by Allers and others. Hardyment stresses the importance of applying the protective film of hexachlorophene in detergent as soon after birth as possible.

Method

Newborn babies were bathed according to instructions furnished by the manufacturer. A nurse, after wetting her hands, takes one teaspoon of pHisoHex and works it into a lather. For additional lather, more water rather than more detergent is then added. The lather is applied to all parts of the baby's body including the head, but taking care to avoid getting suds in the eyes. Care is taken to thoroughly cleanse all folds and creases. The diaper area is washed last. All lather is removed with additional amounts of water and the baby is patted dry with a soft towel. This bathing procedure is repeated every second day.

Bathing with pHisoHex is recommended to the mother to be continued after leaving the hospital. On about the fourth postpartum day, mothers are capped and gowned and taken to the nursery where the nurse explains and demonstrates the procedure. A personal five ounce squeeze bottle of pHisoHex is assigned to each infant at the first bath. The unused portion, consisting of roughly four ounces, is given to the mother to take home on discharge from the hospital on the fifth postpartum day. Mothers are instructed to continue the pHisoHex baths indefinitely, but for at least three weeks in any event.

Results

Prior to institution of pHisoHex baths as routine, lotion baths were usually given, with an occasional baby under the dry care method. While no computation has been made, we estimate the skin infection rate under these procedures, over a five year period, at about 25 per cent. Infections included impetigo, cradle cap and diaper rash as well as staphylococcic skin infections. It is our opinion that the lotion baths made babies prone to rash.

With 283 newborn babies who received pHisoHex baths during the 12 month period covered by this report, we saw no pyoderma, no staphylococcus enteritis, no cradle cap, and no evidence of skin sensitization. A minor rash was seen in a few babies, but cleared up routinely without discontinuing pHiso-

*Winthrop Laboratories

Hex baths and without additional treatment. It is our belief that these rashes were chiefly due to occlusion of pores and were self-limiting.

In one baby a rash developed on an area to which calamine lotion had been applied. However, it was not necessary to discontinue the pHisoHex baths in this or any other patient. The fact is that our concern over infections in the nursery has almost disappeared upon the institution of the pHisoHex baths.

Among babies seen after discharge from the hospital, an occasional miliaria (prickly heat) was seen.

Upon questioning, the mother in each instance admitted that she had discontinued the pHisoHex baths, and upon their reinstatement all cases cleared routinely. In a few cases of secondary skin infections we have recommended three pHisoHex baths daily, with gratifying results in all instances.

With respect to sensitization among handlers of infants, we have seen no skin irritations. Both nurses and mothers have commented upon the ease with which the procedure is carried out, and upon the lack of irritation to the hands. Further, the cost of this preparation is less than the combined cost of soaps, oils, and powders mothers usually purchase for the care of baby's skin.

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Staphylococcal Pneumonia

Nitrofuran Treatment of a Case in an Infant

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Staphylococcal pleuropulmonary infections are relatively frequent in young children. They also tend to run a more severe course in patients of this age group, and most of the fatalities occur in infants under one year of age.[1] Early hopes that penicillin or other antibiotics would solve this problem have been frustrated by the rapid increase and spread of antibiotic-resistant strains of staphylococci. In the following case, staphylococcal pneumonia and empyema in an infant were complicated not only by drug resistance to most common antibiotics, but also by the appearance of an allergic reaction to the antibiotic selected on the basis of in vitro tests. Fortunately the pathogen was sensitive to the nitrofurans, and treatment with Furacin (nitrofurazone) and Furadantin (nitrofurantoin) was dramatically effective.

Staphylococcal pneumonia and empyema in a four months old infant were complicated by drug resistance of the pathogen to most common antibiotics, and by a subsequent allergic reaction to the antibiotic selected on the basis of bacterial sensitivity tests. Thoracentesis with drainage and repeated intrapleural instillations of diluted Furacin Solution, and peroral administration of Furadantin were followed by dramatic improvement and uneventful recovery.

Case History

R. H., a 4 months old white male infant was hospitalized with a three weeks' history of mild upper respiratory infection, the main symptoms being fussiness, cough, and transient elevations in temperature. He had been examined one week earlier because of a fall from the bed to the floor at home, but x-ray studies of the pelvis and lumbar spine as well as examination of the head and neck revealed no bony lesions or anomalies. Examination of the chest at the time also failed to disclose any sign of

an alleged "cold" which the child had had for two weeks. Hospitalization was advised six days later after the infant began to have some breathing difficulty with grunting respirations and paroxysms of severe cough.

At admission, leukocyte count was 15,300 per cu. mm.; Polymorphocytes 65 per cent (staff forms 3 per cent); lymphocytes 30 per cent; eosinophils 3 per cent. Urinalysis was normal.

Rectal temperature was 102 F. There was a flattened percussion note over the anterior and posterior lower right lung fields. Breath sounds overlying this area were quite harsh, accompanied by a few moist rales. The abdomen was slightly distended but soft and without palpable masses within the abdominal cavity. There were no abnormal neurological findings.

The child was placed in a croup tent with cold stream oxygen and mucolytic detergent solution (Alevaire), and given 300,000 units of aqueous penicillin IM every four hours. For 36 hours there was little change in the patient's condition, but rectal temperature rose to 103 F. and a chest x-ray, taken on the third hospital day, showed fluid within the pleural space and in the interlobar septum. A thoracentesis through the right eight infracostal space in the anterior axillary line produced only about 2 cc. of clear straw-colored fluid. A smear and a culture showed no organisms.

On the same day the patient began to have a productive cough. Sputum was obtained for smear and culture, both of which revealed Staphylococcus aureus, coagulase positive and sensitive only to Chloromycetin (chloramphenicol), bacitracin, and Furadantin. Accordingly Chloromycetin was given, 100 mg. IM every 6 hours. After the third dose, the child became increasingly irritable and a generalized urticarial eruption appeared. The leukocyte count had risen to 23,100 with 64 per cent polymorphocytes, 31 per cent lymphocytes and 5 per cent monocytes. A second x-ray revealed increased intrapleural fluid. Upon thoracentesis, 30 to 40 cc. of creamy, purulent fluid gushed from the trocar. Smear and culture were positive for coagulase-positive Staphylococcus aureus with the same sensitivities as above.

In view of the apparent allergy to Chloromycetin, it was decided to instill Furacin Solution intrapleurally. The commercially available 0.2 per cent Solution was diluted with an equal amount of sterile physiologic saline and 10 cc. of this mixture instilled twice daily into the pleural space, with suction catheter clamped off for one hour. The appearance of the fluid draining from the pleural space changed almost immediately, becoming thinner and less tenacious. Twenty-four hours after irrigation was instituted, the child became less irritable and voluntarily resumed taking of food.

Instillation of Furacin was discontinued then and Furadantin Oral Suspension prescribed, 4 cc. every four hours. Within another 24 hours, the patient was afebrile, laughing and playing in his crib. X-ray of the chest showed a marked diminution of pleural fluid and almost complete re-expansion of the affected lung.

Recovery proceeded satisfactorily thereafter and the child was afebrile until discharged two weeks later. The pleural catheter was removed on the ninth day after beginning of Furacin treatment. An x-ray prior to the patient's discharge showed complete disappearance of pleural fluid and re-expansion of the lung; the blood picture was normal. A follow-up examination a month later showed no evidence of permanent pleural thickening or other sequelae. Six months later, when the child was a year old, his physical and mental growth was normal.

Discussion

The importance of early and adequate treatment of staphylococcal pneumonia in infants is highlighted by a recent study of 530 cases of lower respiratory tract infection in children aged under two years: there were only 35 cases of staphylococcal pneumonia among this group, yet these 35 included eight of the 24 fatal cases.[2] The severity and high mortality of the syndrome are stressed by several other recent clinical reports.[3, 4]

In our case, treatment was difficult because the organism was resistant to all common antibiotics except Chloromycetin and bacitracin. When use of Chloromycetin was followed by an allergic reaction, we used Furacin and Furadantin in preference to bacitracin, which, as repeatedly observed specifically upon intrapleural instillation of suitable doses of the solution to infants, has nephrotoxic tendencies.[5]

The nitrofurans, a group of synthetic organic compounds whose antibacterial effectiveness was first reported by Dodd and Stillman in 1944,[6] have since then become widely used in several fields of clinical medicine.[7] These drugs inhibit pyruvate metabolism and their clinical use is comparatively free of serious side reactions. There are several published studies indicating that most strains of antibiotic-resistant staphylococci are highly sensitive to Furacin[8] and Furadantin.[9] The nitrofurans also possess the advantage that development of bacterial resistance to them is slow and limited,[10, 11] and that highly penicillin-resistant strains which may become spontaneously resistant to many apparently unrelated antibiotics, remain sensitive to the nitrofurans.[12]

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Abdominal Pregnancy

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Abdominal pregnancy, though fortunately rare, is one of the extremely serious and too frequently catastrophic conditions encountered in the practice of surgery and obstetrics. This condition was reported as early as 1700 by Saviard and before that, in Spain, Albucasis wrote of the condition about the beginning of the 11th century. In 1500 A.D. it is reported that a successful removal of an abdominal pregnancy with survival of child and mother occurred and James Pemrose, a surgeon, removed successfully abdominal pregnancies from the same patient in the years 1591 and 1594 A.D., with survival of the mother.[1] In 1759, an American named John Bard removed successfully an abdominal pregnancy,[2] and in 1840 and 1876 papers concerning extra-uterine pregnancies were written and published in this country. During the past twenty years, the literature has been rather voluminous concerning extra-uterine pregnancies. I wish to report two cases and discuss very briefly the management of this disorder.

Case Number One: Mrs. E. H., a 31 year old white married female, was admitted to the hospital on June 13, 1954, complaining of a mass in the abdomen. She had had no prior surgery and one and one-half years previous to this, had delivered without complication, her first pregnancy. This child was alive and well at the time she was admitted to the hospital. Her menstrual periods had been normal until the previous July, 1953, at which time her periods stopped. She had not had a normal period since. Her abdomen began to enlarge and was accompanied by swelling of the breasts and some nausea and she believed that she was in a condition of pregnancy. She stated that she felt movement in October and the following January or thereabouts, the abdominal enlargement stopped and she felt no more movement. She visited a physician in March for prenatal care and at the second visit it was deemed that her pregnancy was not normal and x-rays were made of the abdomen which revealed a symmetrical, globoid mass in the lower abdomen. No bones or teeth were seen in the x-ray. She failed to return to her physician until about ten days prior to her admission to the hospital. In April and May, 1954, she had a one day each, menstrual period, of very scanty flow. On admission, she was seen to be a well developed but rather poorly nourished, almost emaciated female, of about stated age. She was noted to have many carious teeth and extremely poor oral hygiene. The heart, lungs and breasts had no abnormalities. The abdomen revealed many striae and a visible and palpable mass extended out of the pelvis to the level of the umbilicus. This was smooth and symmetrical, was not tender, but had a thick or doughy feeling and was nearly fixed and hard to move. Pelvic examination revealed the cervix to be clean and firm and small and smooth. The fundus was palpated to the right of the larger mass and was six inches in diameter and smooth and symmetrical and attached to the larger mass which extended from the cul-de-sac to the level of the umbilicus. This mass was firm and of a more solid than liquid consistency. Urine examination and blood counts were within normal limits and it was the opinion of the referring physician that she had an ovarian cyst or possibly a teratoma of the ovary. At operation, a large cystic mass extending to the umbilicus from the pelvis was attached to the sigmoid and transverse colon, the omentum, the anterior abdominal

wall and all surfaces of the pelvis. This mass was covered by some large tortuous veins and had a semi-grey, rather friable, cystic, thick wall. Aspiration of this cystic mass revealed an almost fecal appearing, non-odorous thick fluid. The mass was elevated around the periphery with considerable difficulty due to the denseness and thickness of the adhesions. However a plane could be established and it was discovered to have a primary attachment to the uterus and left tube. There was surprisingly little bleeding during this dissection. After removal of the mass, it was opened and the fetus and placenta were removed. The abdomen was closed without drainage. The fetus weighed 435 grams and measured 28 centimeters in a crown to heel length. The placenta weighed 300 grams. The estimated age of the fetus by the pathologist was five and one-half months. Aside from a temperature elevation to 101 degrees on the second postoperative day, this patient's course could be said to have been very uncomplicated.

The second patient was a colored female, age 33, admitted on September 3, 1953. She had had two previous abdominal operations according to her history, one for appendicitis and one for a ruptured tube or ovary. She had one previous pregnancy eleven years before, terminating successfully without complication and the child was alive and well at the time she was admitted. She had been hospitalized two weeks before this admission for a partial intestinal obstruction which responded to naso-gastric suction and fluid replacement. Her present illness had begun twelve hours before her admission with severe abdominal pain, nausea and vomiting. The pain was recurrent and colicky of type accompanied usually, by vomiting. Her menstrual periods were regular until two months before her admission and she had been amenorrheic for two regular menstrual periods. The temperature, pulse and respirations were normal with the exception of the white blood count of 14,000. The abdomen was somewhat distended and slightly obese and tender in all quadrants with marked tenderness in both lower quadrants. The pelvic examination revealed an exquisitely tender mass in the pelvis and the fundus could not be positively identified. Bowel sounds were present in the abdomen, were high pitched, tinkling and of a rushing or intermittent type. X-ray examination of the abdomen in the A-P, right lateral decubitis, and sitting positions revealed dilated loops of small bowel partially filled with gas and fluid and suggestive of small bowel obstruction. During operation performed several hours after admission and after fluid and electrolyte replacement, several loops of dilated bowel were found in the upper portion of the abdomen and collapsed small bowel in the lower abdomen. Some of the dilated loops, however, were well adherent to a thick cystic mass in the pelvis. An adhesive band was found to encompass a strangulated loop of mid-small bowel and this was released, clearing the intestinal obstruction. No resection was necessary. The pelvis was then inspected and the mass was found to be covered by the sigmoid colon and its mesentery. On raising this, a piece of placenta-like tissue was found adhering to the right side of the sigmoid. Bleeding from this area was copious and then profuse and a pack was inserted to control this. Approximately 1,000 cc. of dark, bloody fluid, rather thick, was aspirated from the cystic mass lying to the right side of the placenta in the pelvis. The cystic mass was then opened and palpation inside of this revealed the fetus which was removed after clamping and cutting and ligating the cord with chromic catgut. Because of the site of the placenta lying on the sigmoid and right lateral pelvic wall and because of the profuseness of bleeding at the slightest manipulation of this structure, it was deemed inadvisable to attempt its removal and the abdomen was closed after a rubber drain was inserted into the pelvis and brought out the lower pole of the wound. The patient's condition was rather precarious. Two pints of blood were administered on the day of the procedure and two more were given after her return to her room. After the third day, peristalsis was reestablished and aside from a rather profuse drainage from the lower pole of the wound, she presented no major postoperative problems. This drainage continued for approximately one month. She was discharged from the hospital on her fourteenth postoperative day. She was returned once to the hospital two weeks following her discharge, because of a partial small bowel obstruction which was treated by naso-gastric suction and fluids. She has had no further complications and no further pregnancies and at the present time is working as a domestic in our community.

Review of the literature of abdominal pregnancies since 1948, reveals the impression by most writers, that the correct diagnosis is made preoperatively in only 30 to 35 per cent of most the cases.[3] Inasmuch as the disease seems to be increasing in frequency and therefore will probably provoke a higher index of suspicion on the part of the surgeon and obstetrician, this percentage will doubtlessly increase. Among the diagnostic aids aside from the history and examination, x-ray features, when present, suggestive of extra-uterine pregnancy are: an abnormal presentation, frequently transverse with the convexity of the back cephalad, absence of uterine shadows around the fetus and signs of fetal death which are overlapping of the skull bones and hyperflexion of the spine or calcification of the amniotic sac. Some authors suggest that hysterosalpingograms are to be of value in confirming suspected diagnosis, while others enthusiastically and heartily condemn this practice.[4]

Surgical intervention is the only treatment and the choice of the proper time for the operation and the management of the placenta are the real troublesome facets to this problem. It is the general opinion among writers on this subject during the past several years, that if no acute emergency exists and that the fetus is close to the age of viability or about 36 weeks, the patient may be watched until this fetal age is attained. If however, the diagnosis is made early in the pregnancy, surgical intervention should not be delayed. At operation, the decision to assume a "hands off" policy or attempt removal of the placenta may be a real perplexing one. If the fetus has been dead for some time and maceration of the placenta and fetus are present, they should be and probably can be removed with a minimum of hazard from hemorrhage. But if the fetus is alive or just recently dead, the vascularity of these structures is truly terrific and uncontrollable hemorrhage liable to be catastrophic. Most writers report that the central placenta site is usually on or about the tube or uterus and sacrifice of the internal genital organs, leaving one or both ovaries when possible, should be done if it will enable or facilitate the removal of the placenta. If, however, bowel, bladder, omentum or parietal peritoneum are primarily the placental site, it is thought best to ligate the cord with absorbable material, close to the placenta and trim the amniotic membrane back and gracefully back away. Any attempt to pry loose the edge of a vascular and friable placenta to see how easily it will come away should be viewed with circumspection and great alarm. In fact, don't do it. Closure of the abdomen without drainage usually leads to a much lower morbidity rate. Patients with placenta left in situ have a considerably higher morbidity than those in whom the placenta can be removed. However, the greater mortality occurs when the placenta is removed, primarily because of danger of hemorrhage. Leaving the placenta leads to the formation of adhesions and intra-abdominal hemorrhage. However, these eventualities may be treated when met. The incidence of abdominal pregnancy has been quoted at 1:3,200 in areas of nearly 100 per cent colored population and as infrequently as 1:11,000 in areas of less colored concentration. The frequency is said to be sixteen times greater among colored women than among white or other races. This interesting condition presents a real challenge to the surgeon and it is doubtful that the infrequency of these cases will allow any one person to become a real expert at handling them.

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Homemade Rocket Injuries

Sputnicks, Explorers and other rockets currently being fired into space also have fired the imagination of teen-agers—often with tragic results.

Injuries to the hand from homemade rockets are becoming much more frequent, eight severe injuries having been encountered in the Detroit area alone in the first six months of 1958, report three Detroit surgeons.

The average age of the victims involved is about 15 years. "It requires but little imagination to appreciate that the problem of injuries to the hand from homemade bombs or rockets is one that affects young people almost exclusively, the wisdom or timidity conferred by advancing years militating against the unnecessary exposure of life and limb in search of bigger and better bangs," the doctors said.

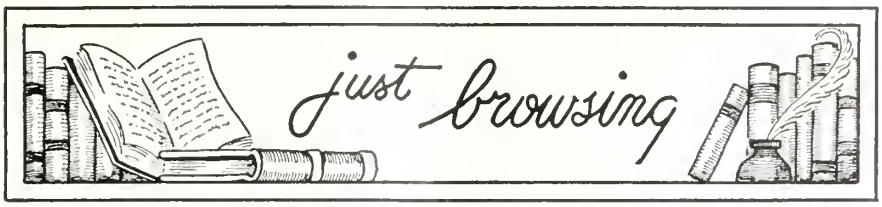
The expenditure of more than a little ingenuity is necessary in the manufacture of such toys and, in fact, these patients "represent a group of highly intelligent children, able with their hands and addicted to building and managing quite intricate instruments and tools. That this type of individual should be so severely handicapped is a matter of some concern, more so when one notes the association of injuries to the face, eyes and ears in a rather large number of cases."

The authors, Dr. F. Augustus Arcari, Dr. Robert D. Larsen and Dr. Joseph L. Posch from the Department of Surgery, the City of Detroit Receiving Hospital, discuss 37 patients, aged 12 to 17. Two of these children died from their injuries; the vision of four was impaired, one permanently; several mangled their hands and lost from two to four fingers.

In the treatment of hand injuries primary emphasis was on maintaining an intact thumb and secondarily was the attempt to retain use of a thumb opponent. Tendon repair also was vitally important in the presence of these massively destructive injuries.

In the postoperative period tendons require about three weeks to attain functional strength. At this time active exercises may be instituted. Secondary procedures involve the application of skin, tendon and nerve grafts and even the construction of digits.

In conclusion the authors said that treatment of these particular injuries is aided to a considerable extent by the young age of the patient, "with his excellent recuperative powers and remarkable capacity for compensating and adapting to disability."



During the preparation of the Centennial issue of the JOURNAL we learned many interesting facts about Kansas history. Sister M. Paul, of the Sisters of Charity, at Xavier, supplied the following notes about St. John's Hospital in Leavenworth, which was the first civilian hospital in the state of Kansas. It should be interesting to many.

"The oldest civilian hospital in the state is St. John's Hospital. It was established by the Sisters of Charity of Leavenworth, who, one hundred years ago, brought the first trained nurse to the Territory.

"The hospital was begun in 1863 and completed in 1864, on land donated by Bishop John Baptist Miege, S.J., Vicar-Apostolic of the Indian Territory, who had asked the Sisters to come to Leavenworth in 1858 to establish hospitals, schools, and an orphanage.

"The small hospital, which should have been completed in November 1863, was still unfinished on March 15, 1864, when the first patients, 'a whole family of poor, white refugees from Alabama' were admitted. They were bathed, combed, shorn, and freshly clad—their old garments having made a bonfire in the back yard. After several months of careful nursing the entire family recovered. The second patient was a consumptive, who died a most edifying death.

"In November a lumber wagon stopped in front of the hospital and five men were taken from it and laid on the sidewalk. They had been caught in a blizzard while buffalo hunting near Fort Harker. The man at the depot had hired the lumber wagon to carry the frozen men to the hospital. Passing pedestrians helped to take the men inside. It was necessary to amputate the feet of two of them, a third lost his ears, a fourth his toes, and the fifth died.

"The Superintendent, or Superior, of the Hospital was Sister Joanna Bruner, the first trained nurse in the state. She had received her training and institutional experience in Kentucky and Tennessee.

"At St. John's, Sister Joanna probably had three Sisters helping her. The beginning years were precarious, and during the first winter Sister Joanna had to apply to Mayor Anthony for fourteen cords of wood to feed the woodstoves. Mayor Anthony also paid the transportation home of the four men that had recovered from the blizzard. No state appropriations were ever given to St. John's and as far as we can determine even modest requests to the State Legislature, such as this one made probably in the 1870's, were not honored:

"To the Honorable Members of the Legislature and House of Representatives:

Gentlemen:

We, the undersigned, place before your Honorable Body a Bill for the maintenance and care of the sick poor, cared for by the Sisters of Charity of St. John's Hospital, Leavenworth, Kansas. Heretofore we were paid $3.00 per week; since the last time your Legislative Body met, the sick were left to us unprovided for.

You have a house to receive the poor, but the Hospital is for the sick. We give our services gratis, but we must be aided to run the Hospital. Therefore, we hope your Hon. Body will not hesitate to allow the Bill placed before you; we do not ask for an appropriation, only for the small pittance of $3.00 per week for the sick poor who have been cared for by us. Below you will find the itemized bill, and names of those persons cared for at St. John's.

Should any of the members of your Hon. Body doubt it, we refer them to the attending Physicians: Drs. M. S. and D. W. Thomas, Nealy and Philips."—*O.R.C.*

PRESIDENT'S PAGE

DEAR DOCTOR:

Why is there such apathy on the part of many of our members in attending our annual meetings? What are your suggestions for the place, the type, and the length of meetings? Your ideas are needed.

The Constitution and Rules Committee proposed at the Topeka meeting the formation of a new body to be known as a Format Committee. This recommendation was accepted by the House of Delegates. Such a committee has been formed and has had its first meeting under the chairmanship of President-elect F. E. Wrightman.

Attendance and interest in the functions of our state Society has been on the wane for a number of years. This is not peculiar to our organization or our area. This is a common problem among medical groups. Many explanations are offered, none of which are thoroughly convincing. It is the conviction of this writer that given the proper emphasis and format the Kansas Medical Society's annual meeting can be an excellent source of postgraduate education and a forum for the discussion of mutual problems. The friendliness and fellowship among the doctors of Kansas has long made me proud to say I am a member of this body. Our meeting is important in keeping it that way.

For this, and other reasons, the Format Committee was conceived. One member from each county in which the state meeting is held and two members at large, under the chairmanship of the President-elect, constitute this committee. This new body is in no way to supplant or negate the local society committee on arrangements. Its function is to conceive an overall plan to increase attendance and interest at our annual meetings.

May I make a plea to each one of you? Dr. Wrightman and his group would welcome any suggestions you may have. Please communicate to him or the executive office your ideas. We would be most grateful for them.

Fraternally yours,

Glenn R Peters M.D

EDITORIAL COMMENT

The Hall of Health

Under the direction of L. R. Pyle, M.D., of Topeka, the Kansas Medical Society presented a Hall of Health to which the public was invited. It was held at the Mid America Fair Grounds in Topeka and extended from mid April to the close of the Centennial Annual Session on May 6.

Some thirty-three separate exhibits were presented on a variety of health subjects, by many different agencies. The American Medical Association loaned exhibits on Birth, the Eye, and How We Breathe. There were several on Safety and Safe Driving. One illustrated the hazard of poisons commonly found in the home.

A Civil Defense exhibit presented a Geiger Counter set up to detect radioactive substances and an emergency field kitchen complete with examples of foods that could escape contamination. Several mental health exhibits presented charts, pictures and actual materials used in the treatment of mental illness.

A blood procurement exhibit illustrated through the use of a manikin the manner in which a blood bank can obtain blood. A model telephone answering service was demonstrated, *Today's Health* was distributed, nursing careers were explained, Blue Shield, the Red Cross, the National Foundation, the Allergy Foundation of America, the Tuberculosis Association and the American Foundation for Eye Care were among the agencies that presented material at the Hall of Health.

The University of Kansas School of Medicine showed the works of Arthur Hertzler, M.D., the Kansas distribution of physicians who graduated from this school and a plastic encased cross-sectioned fetus.

The Kansas Heart Association in cooperation with the University of Kansas School of Medicine demonstrated a heart-lung machine. The Sedgwick County Medical Auxiliary displayed old medical instruments. The Historical Society set up a pioneer doctor's office and a modern office with equipment loaned from the Munns Medical Supply Company and Thachers was placed nearby to contrast the old with the new.

And there were more. Many had working models viewers could use for themselves. Most presented literature for people to take. Although the public did not come in large numbers, many schools from all over the state sent bus loads of students to see the Hall of Health. For each scheduled visit a Topeka physician and a member of the Shawnee County Medical Auxiliary were present to conduct guests on a guided tour.

This also was an event scheduled as a feature of the Centennial Celebration of the Kansas Medical Society.

Dallas Whaley

The Kansas Medical Society welcomes to its staff a young graduate of Boston University's School of Public Relations & Communications. His immediate previous employment was in the field of public relations with The Menninger Foundation.

Dallas Whaley began work on May 1, 1959 and will assume the responsibilities of Managing Editor for the JOURNAL. The time not necessary in this activity will give the Society the benefit of an additional person trained in public relations.

Those who attended the Centennial Annual Session met him at the registration desk where he began his official connection with the Society. He has done an exceptional job of gathering the loose ends in the JOURNAL office occasioned by the long period this position was vacant. In a very short time that segment of Society activity will have returned to normal. It is with pleasure that the Society announces this addition to the Executive Staff. Much will be heard from Dallas Whaley in the way of new activities in the near future.

The Kansas Doctor

The medical history of Kansas has been published as one portion of the Centennial of the Kansas Medical Society. It is a narrative account, and a very good one, of the most significant events of the first one hundred years of medicine in this area.

The author, Thomas N. Bonner, Ph.D., is Professor of History at Omaha University. Besides other writings, this is at least his second book on the history of medicine, the first being an account of medicine in Chicago. Not only does this book contain a wealth of factual information but the reading is pleasant and exciting.

"The Kansas Doctor" is the result of cooperative effort on the part of many persons. Any attempt to name them will have omissions but certainly a few should be mentioned whose work was essential to the ultimate production of this book.

Ralph R. Melton, M.D., of Marion, planned the formula under which the research became possible. After presenting his idea to the House of Delegates it was approved something like six years ago. Shortly thereafter he was appointed chairman of the Committee on History, and work was begun.

W. M. Mills, M.D., of Topeka, became chairman of this Committee. At the time of his death the project had been almost completed. Dr. Melton again ac-

cepted the chairmanship and both of these members gave literally hundreds of hours of their time to make the book possible.

Research was done by the Department of History at the University of Kansas under the most cooperative direction of Professor G. L. Anderson, chairman of the Department. Many graduate and upper class students participated in the reading of newspapers, at least two were thoroughly examined page by page for one hundred years. Others were examined for shorter periods. In addition to this, official proceedings, THE JOURNAL and other publications of this and other state medical societies, county societies and related health organizations were studied. All this mountain of material was made available to Dr. Bonner.

The History Committee met often with the University of Kansas committee at which times Franklin D. Murphy, M.D., Chancellor, was always present and to which meetings he regularly contributed most worthwhile and practical suggestions. Clarke W. Wescoe, M.D., Dean of the School of Medicine, was likewise most helpful as were many other faculty members in the School of Medicine and at the University. Special mention should be made of John H. Nelson, Ph.D., Dean of the Graduate School, and Clyde Hyder, Ph.D., Editor of the University of Kansas Press for the great help they gave.

Mr. Nyle Miller of the State Historical Society, the Menninger Foundation including many persons, the Kansas State Board of Health, the Healing Arts Board and many others should be mentioned without whose assistance the book would never have been prepared. The Kansas Medical Society and its Committee on History is much indebted to them all.

As the manuscript progressed, the Committee on History read it carefully chapter by chapter. The author was most kind in his acceptance of an occasional suggestion and all who saw the manuscript became increasingly enthusiastic as they read it.

In 1958 the House of Delegates voted this book should be in the hands of each member of the Society and raised the dues to pay for the purchase of a copy. Non dues paying members may order theirs for $5.00 from the Society office and additional copies are available for purchase for gifts. It is recommended that county societies buy copies for schools and for libraries.

This is a noteworthy book. It not only warrants careful reading but is of sufficient interest that, once started, the author will hold his reader's attention. It represents a landmark in the achievements of the Kansas Medical Society and is one of many projects to celebrate the Centennial.

THE KANSAS PRESS LOOKS AT MEDICINE

Editor's Note. In this section the JOURNAL *reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.*

100 YEARS OF MEDICINE

The Kansas Medical Society observed its centennial convention in Topeka appropriately and with due notice of the fact that Kansas is aging. Not many state organizations are yet 100 years old. The doctors not only came to the frontier early but got together as a body immediately upon arrival. Most professional men are "joiners," and in pioneer times the need for togetherness possibly was more urgent than now, when practitioners have access to a great volume of printed matter concerning medicine.

The convention was accented by two contrasting notes. One was the presence of and the honoring of Milburn Stone, Kansas film actor who has made the character of Doc Adams well known to American television viewers. In recognition of Doc Adams' weekly 30-minute stint as frontier physician and surgeon (on the screen) the medical association made Stone an honorary member. He loved it; said it was the greatest thrill that ever came to him.

That was the note from the past. There was a note of prophecy, too, a portent of what may happen to the medical profession if certain things aren't done. Socialization of medicine is a possibility, said James Stewart of New York, addressing the centennial convention. The vice president of the National Blue Cross Association declared that the people of this country want voluntary health programs and they are going to step up and ask for a federal tax-supported program if and when they find present programs are not meeting health requirements. As reported in the Topeka press Stewart pulled no punches in discussing the threat of socialized medicine.

This was hardly a happy note on which to end a convention of doctors. But doctors are not unmindful of the facts of life or the changes affecting America in the past 100 years.—*The Kansas City Kansan, May 8, 1959.*

In 1957, over 370 persons were killed while crossing at an intersection with signal.

Maternal Mortality Report

The patient was a 24 year old white primigravida who died in a general hospital in a small city, the cause of death being given as cardiac decompensation due to severe circulatory shock from hemorrhage and cesarean section. Delivery of a male infant weighing eight pounds, 13 ounces by section preceded death by four days.

Prenatal care was adequate and included x-rays in the eighth month which indicated a reduced antero-posterior diameter of the midpelvis. A trace of albuminuria was noted on two occasions in the week preceding delivery.

Ten days after the due date, the patient experienced spontaneous rupture of the membranes and was hospitalized. The attending physician departed on his vacation that day, the colleague taking over the case not being informed of the pelvic narrowing. Nine hours after rupture of the membranes, the latter found the patient in moderate labor with three cm. dilatation, fetal heart 140, the head unengaged, and the baby large but presumed deliverable. Labor was desultory for some 54 hours when a consultant was called in. Vaginal examination disclosed five to six cm. dilatation. Intravenous Pitocin was administered for about one hour by which time 0.08 cc. had been given, contractions were almost continuous and the cervix was completely dilated. Delivery was attempted with episiotomy and the use of three types of forceps without success. During this effort, one half cc. of pus was seen coming from the rectum.

The patient was then delivered by cesarean section. During the closure, vaginal bleeding of some 1,500 cc. was noted and, on reentry, a cervical laceration was discovered and repaired. The patient went into shock during this time but was given 1,000 cc. of blood and was returned to her bed at the termination of the procedure in fairly satisfactory condition. She soon began to run a febrile course and deteriorated progressively, dying 96 hours postoperative in a state of continuous convulsions, despite antibiotics, further blood replacement, gastric suction and efforts to combat rising blood pressure and renal failure.

Committee Opinion: The following deficiencies were noted by the committee:

1. Insufficient examination after rupture of the membranes with an unengaged head to establish the severity of the disproportion.
2. Inadequate antibiotic therapy in the face of early rupture of the membranes and a long manipulative labor.
3. The use of intravenous Pitocin in the presence of a cephalo-pelvic disproportion.
4. Attempted forceps delivery in the absence of proper conditions.
5. Inadequate blood replacement and attention to electrolyte balance and proper hydration.
6. Inadequate postoperative management, e.g., premature discontinuance of gastric suction, solid food prescribed despite ileus and anuria.
7. Excessive dependence upon observations and reports of inadequately trained personnel. (Registered nurses were reportedly "very scarce" in the hospital.)

The death was classified as preventable, the inital error being misjudgment of the degree of cephalo-pelvic disproportion (the opinion of the attending physician which the committee affirmed).

Classification: Obstetric death, preventable.

One of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas.

Tumor Conference

Reticulum Cell Sarcoma of the Stomach

Edited by THOMAS J. FRITZLEN, M.D.

Dr. Friesen (Moderator): This patient had an unusual tumor of the gastrointestinal tract. It has specific prognostic and therapeutic features which warrant consideration of its diagnosis and management.

Mr. Betz (Medical Student): This 64 year old white male farmer was admitted to the University of Kansas Medical Center for the first time on February 12, 1959 with a chief complaint of upper abdominal pain for 4 months. The pain was in the epigastrium and across both upper quadrants and immediately followed the ingestion of any sort of food. It did not radiate and was steady in character. The amount and duration of the pain had increased steadily and it sometimes occurred at night without relation to ingestion of food. He had a 20 pound weight loss. He denied loss of appetite but had markedly restricted his food intake because the pain seemed to be produced by eating. He also noted moderate constipation. An x-ray examination 5 weeks before admission is reported to have shown a gastric ulcer. He had been placed on an ulcer regimen without relief of his symptoms. Re-examination by x-ray two weeks prior to admission showed the ulcer to be unchanged. He had not noted diarrhea, melena, hematemesis, dysphagia, nausea or vomiting. Review of symptoms revealed no significant complaints. He denied fever, chills or jaundice.

Dr. Friesen: Were any particular forms of food more aggravating? Could he do anything to relieve the pain?

Mr. Betz: He felt that cold food often aggravated the pain and he stated that the more he ate the worse he felt. Eating slowly seemed to cause less discomfort.

Dr. Friesen: What were the physical findings?

Mr. Betz: He was a well developed, thin, white male who weighed 135 pounds and was six feet tall. The vital signs were within normal limts. The only positive physicial findings were evidence of recent weight loss and moderate tenderness across the upper abdomen.

Dr. Friesen: What are the significant laboratory studies?

Mr. Betz: Blood counts, urinalysis and electrolyte studies were within normal limts. Liver function studies were within normal limits. An electrocardiogram was interpreted as normal. The serology was nonreactive. The blood urea nitrogen was 22.5 ml. per cent. Gastric analysis revealed no free acid at any time and 12 units of total acid in the fasting specimen and 20 units in the 1 hour specimen. The sedimentation rate was slightly elevated to 12 ml. per hour.

Dr. Friesen: May we have the x-ray findings?

Dr. Tice: X-rays of the chest were essentially normal. With a barium meal the esophagus was normal. The stomach showed a constricted area in the mid-portion of the fundus which persisted during fluoroscopy. The lower portion of the stomach and the duodenum

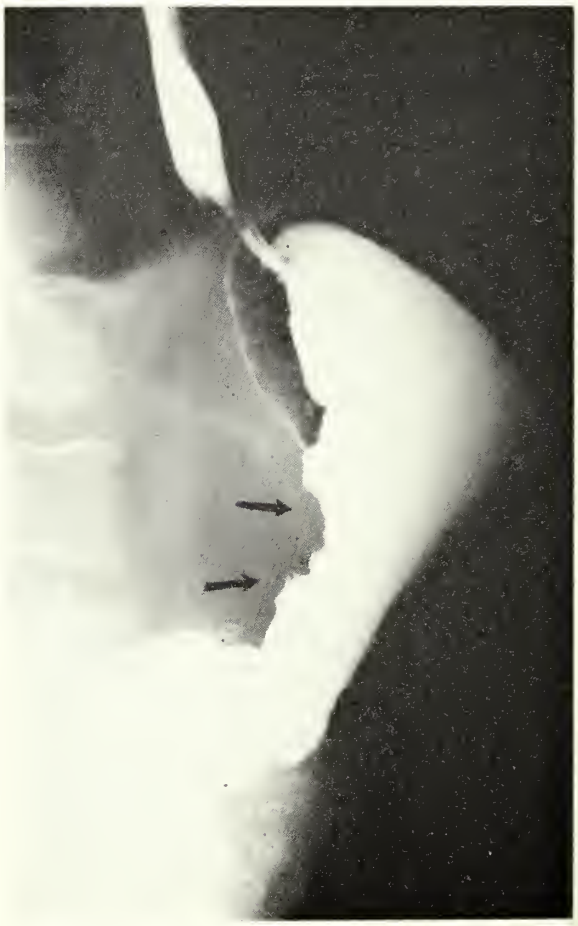


Figure 1. Arrows indicate area of superficial ulceration of the gastric mucosa along the lesser curvature.

Cancer teaching activities at the University of Kansas Medical Center are aided by grants from the National Cancer Institute, U. S. Public Health Service, and the Kansas Division of the American Cancer Society. Dr. Fritzlen is a Trainee of the National Cancer Institute.

appeared normal. The rugal folds were thickened along the lesser curvature in the mid-portion of the stomach with multiple superficial ulcerations (Fig. 1). This was interpreted as an area of probably neoplastic infiltration, possibly lymphoma. Inflammatory reaction to a benign ulcer was not entirely excluded.

Dr. Friesen: What was done for the patient?

Mr. Betz: Four days after admission, when diagnostic studies had been completed, he was taken to the operating room. At surgical exploration there was found firm induration of the lesser curvature of the stomach extending toward the greater curvature and proximally almost to the gastroesophageal junction. The lesion appeared neoplastic. No evidence of metastases outside of the stomach was seen. Accordingly, a total gastrectomy was carried out, including removal of the distal few centimeters of the esophagus and en bloc removal of the spleen and the greater omentum. Gastrointestinal continuity was restored by an esophageojejunostomy.

Dr. Friesen: Was this lesion of the lesser curvature diffuse rather than a discrete tumor mass?

Dr. Rieger: Yes, the tumor infiltration was diffuse. The serosa was only slightly thickened and white as compared with uninvolved areas. The surgical diagnosis at the time of operation was of carcinoma without evidence of metastasis.

Dr. Friesen: May we have the pathologist's report?

Dr. Mantz: The gross specimen consisted of the stomach with an attached 1 centimeter segment of distal esophagus and the first portion of the duodenum. The external appearance of the stomach was as described. In the opened specimen there was a large, poorly limited area of thickening along the lesser curvature with flattening of the rugae and superficial mucosal ulceration. There were moderately enlarged lymph nodes along the greater curvature of the stomach. Examination of the gross specimen suggested one of two diagnoses, first, a superficial and diffusely infiltrating carcinoma of the linitis plastica type, and second, a lymphoma diffusely involving the stomach wall.

Histologic examination revealed a tumor of a uniform cell type which appeared to arise in the submucosa. It extensively infiltrated the stomach wall and partly destroyed the overlying mucosal surface (Fig. 2). The tumor cells were of extremely uniform appearance, and had large, round nuclei and scanty cytoplasm. There was no acinar or organoid pattern. The tumor extended in some places into the subserosa. Tumor was present near the line of excision in the esophagus. The histologic appearance was that of a reticulum cell sarcoma.

Three of 31 lymph nodes examined showed areas characteristic of reticulum cell sarcoma. These nodes were one each from the subserosa, the lesser omentum along the lesser curvature, and the greater omentum. No changes of reticulum cell sarcoma were seen in the spleen.

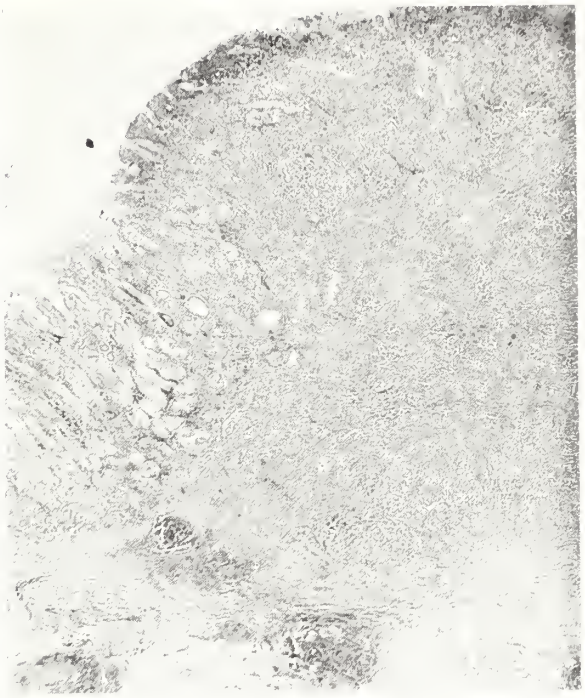


Figure 2. Tumor in the submucosa and adjacent structures with mucosal destruction and ulceration.

A review of the world's literature indicates that between five and ten per cent of malignancies of the stomach are sarcomas.[1] Among these, leiomyosarcomas and lymphomas are most common. All the various types of lymphomas occur and among them reticulum cell sarcoma is relatively frequent. Some studies indicate that there is a relatively better prognosis in patients who have lymphosarcoma and receive adequate surgery followed by irradiation than in patients who have a carcinoma of the stomach. However, a study from this institution tends in part to refute this.[2] There are reports in the literature of survivors in good health for periods of ten to twenty years and I personally am following two patients with a tumor of this histologic type who are alive twelve and eight years respectively after surgery and x-ray therapy.

Dr. Friesen: What is the role of frozen section technique in assisting with the diagnosis of this lesion?

Dr. Mantz: Frozen section studies can rule out the presence of epithelial neoplasms. However, the distinction between chronic inflammation and lymphoma by histologic examination of frozen sections sometimes is not possible. The gross appearance of the lesion in situ can often settle the issue, and it is

in such cases that the pathologist should be called to the operating room.

Dr. Friesen: On the basis of the pathologic examination, Dr. Mantz, what would you say about the prognosis?

Dr. Mantz: I would be conservative because of the nature of the lesion and also because there is tumor near the line of resection and in three lymph nodes. The course of such a tumor is unpredictable, but there is a reasonable chance that with follow-up radiation therapy this man may have several or many years of useful and comfortable life, I recall a case in which a man, much younger than the present patient, had a gastrectomy because of a gastric ulcer, and a well differentiated lymphosarcoma was overlooked at the time of surgical pathological examination of the resected stomach. The patient received no follow-up treatment of any kind, remained symptom-free for four years, and then he returned to the hospital with a diagnosis of acute lymphatic leukemia. Review of the original surgical specimen then, by an examiner who did not know the previous diagnosis or history, revealed the well differentiated lymphosarcoma.

Dr. Friesen: Will this patient receive radiation therapy?

Dr. Rieger: The patient is still in the immediate postoperative period and the question of postoperative irradiation has not yet been discussed.

Dr. Friesen: Dr. Tice, what are the general principles of radiation therapy for such a patient?

Dr. Tice: We would probably give a depth dose of between 2,500 and 3,000 roentgens to the region of the stomach bed. This is the range of radiosensitivity of the lymphomas and our therapy would be directed at control of any tumor that might have remained after surgery.

Dr. Friesen: Dr. Mantz, do you think that there is sufficient induration and tumor infiltration in the stomach wall to explain his pain on eating on the basis of non-distensibility of the stomach?

Dr. Mantz: I think that is an excellent possibility.

Dr. Friesen: This case has been one of an older man with upper abdominal pain produced by eating and with x-ray evidence suggestive of a neoplasm diffusely infiltrating the stomach wall. Further, there is a better prognosis for patients with a sarcoma, particularly a lymphosarcoma, of the stomach, as compared with that for patients with the much more common epithelial gastric carcinoma.

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THE MONTH IN WASHINGTON

Editor's Note. The following summary of Washington news was prepared by the Washington office of the A.M.A. for distribution to state and regional medical journals.

Congress won the first round in a battle over medical research funds.

The House voted $344,279,000 for the National Institute of Health, $50 million more than the Administration asked for in the fiscal 1960 bedget. The move to increase medical research funds also had strong support in the Senate.

However, the Health, Education and Welfare Department and the Budget Bureau will have the final say on how much of the appropriated funds are spent during the 1960 fiscal year when the Administration is striving to balance the budget.

Arthur S. Flemming, Secretary of Health, Education and Welfare, vigorously denied a charge of the Democratic-controlled House Appropriations Committee that the Administration had "gone so far as to set back the medical research program . . . in a desperate attempt to present, on paper, a balanced budget." Flemming said the committee was trying to give a "clearly misleading" impression. He also said it was hard to see how the Administration's $294 million program could be regarded as a backward step.

Flemming pointed out that the Administration request was for the same amount voted by Congress last year. And, he added, some of last year's appropriation will not be spent this fiscal year.

At the same time, U. S. Surgeon General Leroy E. Burney testified before a Senate Appropriations Subcommittee that there was a shortage of trained personnel in all fields related to human health, including medical research.

More Doctors. Rep. Francis E. Dorn (R., N. Y.) again has introduced a bill that would provide for a special commission making a study of the supply of physicians. In a letter put in the *Congressional Record,* Dr. F. J. L. Blasingame, Executive Vice President of the American Medical Association, envisaged an adequate supply on a long-range basis. He said: "Over the long haul, the increase in medical students is much greater proportionately than is the increase in the population. . . . The future, I believe, looks bright."

Russia A-Tests Dirty? U. S. scientists have blamed Russia for most of the radioactive fall-out thrust into the atmosphere in the last two years. But testimony

before a Joint Congressional Committee on Atomic Energy estimated that over-all the United States and Great Britain had created nearly three times as much radioactive debris by testing nuclear weapons as the Soviet Union had.

Russian tests were described as "extremely dirty" as to radioactive debris. However, the Russians have not exploded as many test weapons and devices as the Western Powers have.

The scientists differed on the degree of danger to humans posed by the radioactive fall-out. John A. McCone, Chairman of the Atomic Energy Commission, said that up to now the fall-out hazard has been "very small" and not serious when compared with common hazards, including natural radiation. But he warned against a "very serious hazard" in the future if nuclear tests are not restricted by international agreement.

Care in PRN Urged. A Food and Drug Administration official has urged that physicians use care and judgment in writing PRN and similar prescriptions for sleeping pills and amphetamines. Nevis Cook of the agency's enforcement bureau said some pharmacists have been selling the drugs too freely on such prescriptions. The FDA planned to take court action when a glaring abuse presented a strong case. The issue is whether a pharmacist improperly practices medicine by indiscriminately refilling such prescriptions.

Need More Officers

There are approximately 22,000 state police officers in the nation. Of these, only 60 per cent are available at any given time because of sick leave, vacations, court assignments and other absences. Dividing these into three eight-hour shifts, we have only 2,300 patrolling our 60,000 miles of road at one time. Thus each officer has an average of 260 miles to patrol.

Scots Don't Trust Radar

The police failed to secure a conviction in the first speed limit charge brought in Scotland on the evidence of a radar speed meter. In dismissing the case the presiding sheriff described the radar as a rather unreliable machine.

Familiarity Breeds Carelessness

Ohio statistics for 1958 show that most of the traffic accidents happened to motorists who were familiar with the roads on which they were driving. All but 5 per cent of the drivers involved in accidents were from Ohio—79 per cent were residents of the counties in which the accidents occurred.

DEATH NOTICES

George Franklin Pendleton, M.D.

Dr. George Franklin Pendleton, 75, an obstetrician and gynecologist from Kansas City, passed away in April. Dr. Pendleton had been president of the staff of the St. Mary's and Trinity Lutheran hospitals. He was also chairman of the obstetrics department at Trinity Lutheran, in Kansas City.

Donald Macrae, M.D.

Dr. Donald Macrae, 52, passed away in April. Dr. Macrae was the first coroner of Shawnee County and still held his office at the time of his death. For a number of years he was medical supervisor for the Du Pont ordinance plants. He came to Topeka in 1946, from Claremore, Oklahoma, where he was president of the county medical society.

L. A. Donnell, M.D.

Dr. L. A. Donnell, 53, a well-known Wichita physician and surgeon suffered a fatal heart attack in April. The former Wichita City Commissioner and Mayor was driving his car at the time of his attack. He was a native of Kinsley, Kansas and was born April 23, 1906. His father was also a physician.

Dr. Donnell attended Fairmont College in Wichita and finished college at Friends University. He earned his medical degree from the University of Louisville in Kentucky.

Among his survivors are his wife, Mrs. Donnell, and a son Dr. James Donnell of Tacoma, Washington.

Charles Davis McKeown, M.D.

Dr. Charles Davis McKeown, 67, medical director of the Farmers and Bankers Life Insurance Company passed away in April in a Wichita hospital. Dr. McKeown came to Wichita 33 years ago from Hutchinson. He was one of the first Wichita doctors to specialize in the field of Anesthesia. In 1951, he assumed his post as the insurance company's Medical Director. Dr. McKeown graduated from Loyola University in Chicago in 1918. He was survived by his wife and son Willis A. McKeown.

Economics in Medicine

Personal Living Expense

FLOYD F. WEHRENBERG, *Kansas City, Missouri*

Undoubtedly, the most controllable expense you have is for personal living, those expenditures for rent, food, clothing, and the like. We do not refer to any deductible items, any assets purchased, nor any payment on liabilities.

In previous articles we have discussed the items leading to your "Net Taxable Income." However it is equally important to your future plans that you give careful attention to what you do with your money from that point. Far too many doctors who realize a nice profit from their profession find at the end of the year that they have very little "Net Gain." You want to put your money to work for you and unless you control the spending of that money, you will have little left for savings and earning power.

That personal living expenses are largely under your control is proved by the vast differences in amounts spent by various families in similar circumstances. Some can live on $400 per month and feel well provided for; others seem to require twice that or more.

Averages

A recent survey by Professional Management Midwest of personal expenditures by Midwestern doctors revealed the following averages:

Annual Income	*Annual Expense*	*Monthly Expense*
$ 5,000 to $10,000	$ 5,150	$ 430
10,000 to 15,000	6,600	550
15,000 to 20,000	8,300	690
20,000 to 25,000	9,100	760
25,000 to 30,000	10,450	870
30,000 to 35,000	11,900	980
35,000 to 40,000	12,550	1,050

Note the proportionate rise in average living costs with the rise in income. Obviously there is a difference of opinion as to what is necessary to comfortable personal living. The factors which play a part in your answer are these: (1) the size of your family, (2) your earning power, (3) the educational needs of your children, (4) your wife's requirements after the children are self-sufficient, and (5) your own plans for retirement.

The doctor with a large family will naturally have a larger outlay for the present and will also have to make better provisions for the future. Prudent outlay of money in his situation is essential.

If you find that your apparent current "needs" for personal living will not permit you to prepare for the future, a review of those "needs" is in order. Many doctors handle it this way. The doctor and his wife sit down with their business consultant and make out a budget for themselves. They consider fixed expenses and future aims and work out a practical plan to meet their requirements.

Here are a few suggestions for preparing a workable budget. If you have an established practice, average your earnings over the past few years. Then, based upon your net taxable income, estimate your current taxes. Next, figure your insurance needs for the coming year, and finally, decide how much you would like to save in the next twelve months. Subtract these three items from your estimated taxable income and you will have the amount to which you must limit yourself for your personal living. For example:

Estimated Taxable Income	$20,000
Less: Federal Tax	$ 5,000
(Less) Life Insurance	$ 2,300
Desired Gain (Savings)	$ 4,300
Personal Living Allowance	$ 8,400

Remember, your figures must be practical and they must be followed or a budget will be of no value to you.

Many doctors delegate to their wives the handling of all household expenditures and clothing. They restrict themselves to their "allowance" each month in order that they may accomplish their common aims. In this way a maximum amount can be saved for investments and a happy and secure financial future can be assured.

Mr. Wehrenberg is Missouri-Kansas manager, Professional Management Midwest, 4010 Washington Street, Kansas City, Missouri.

Thruway Beats Own Record

The New York State Thruway established a record low fatality rate of 0.88 deaths per 100,000,000 vehicle miles driven in 1958. The rate in 1957 was 1.94. There were only 17 deaths last year as motor vehicles traveled a record 1,942,000,000 miles, compared to 33 fatalities in 1957 with 1,700,545,210 miles traveled. There were no multiple-death accidents on the Thruway in 1958.

Civil War Medicine

A Personal Account from the Diary of Charles F. Little, M.D.

LAWRENCE L. EVANS, M.D., ***Kansas City, Kansas***

May 12, 1863

"The camps of the wounded—O heavens, what scene is this?—is this indeed humanity—these butchers' shambles? There they lie in an open space in the woods, from 200 to 300 poor fellows—the groans and screams—the odor of blood mixed with the fresh scent of the night, the grass, the trees—that slaughterhouse! While over all the clear, large moon comes out at times softly, quietly shining."[16]

—From a diary of Walt Whitman.

The same year that Walt Whitman wrote those words from Fredericksburg, a young medical officer just out of school was also writing daily entries in a diary. Dr. Charles Fredrick Little, Assistant Surgeon in the 19th Illinois Infantry, kept daily notes in a pocket-size, leather-bound book during his enlistment in the Union Army. Later when Dr. Little moved to Kansas, he brought the diary with him. The diary, now in the possession of Dr. Little's family, offers a personal account of experiences in the War Between the States. By reading some of his notations, it is possible to gain knowledge of life in the camps of the wounded nearly a century ago.

Charles Fredrick Little was born in Milford, New Hampshire, January 27, 1836. His father, Caleb Jewett Tenney Little, was a New Hampshire merchant and was descended from a George Little who came to Newbury, Massachusetts in 1640 from Unicorn Street, near London Bridge, England. When Charles Little was three years old, his parents moved to Kewanee, Illinois, a small town west of Chicago.

Educated in the public and high schools of Kewanee, he studied medicine under a preceptor, Dr. T. D. Fitch, for about a year in 1861. Then entering Rush Medical College, Dr. Little studied under Dr. Daniel Brainard, surgeon and founder of the school.

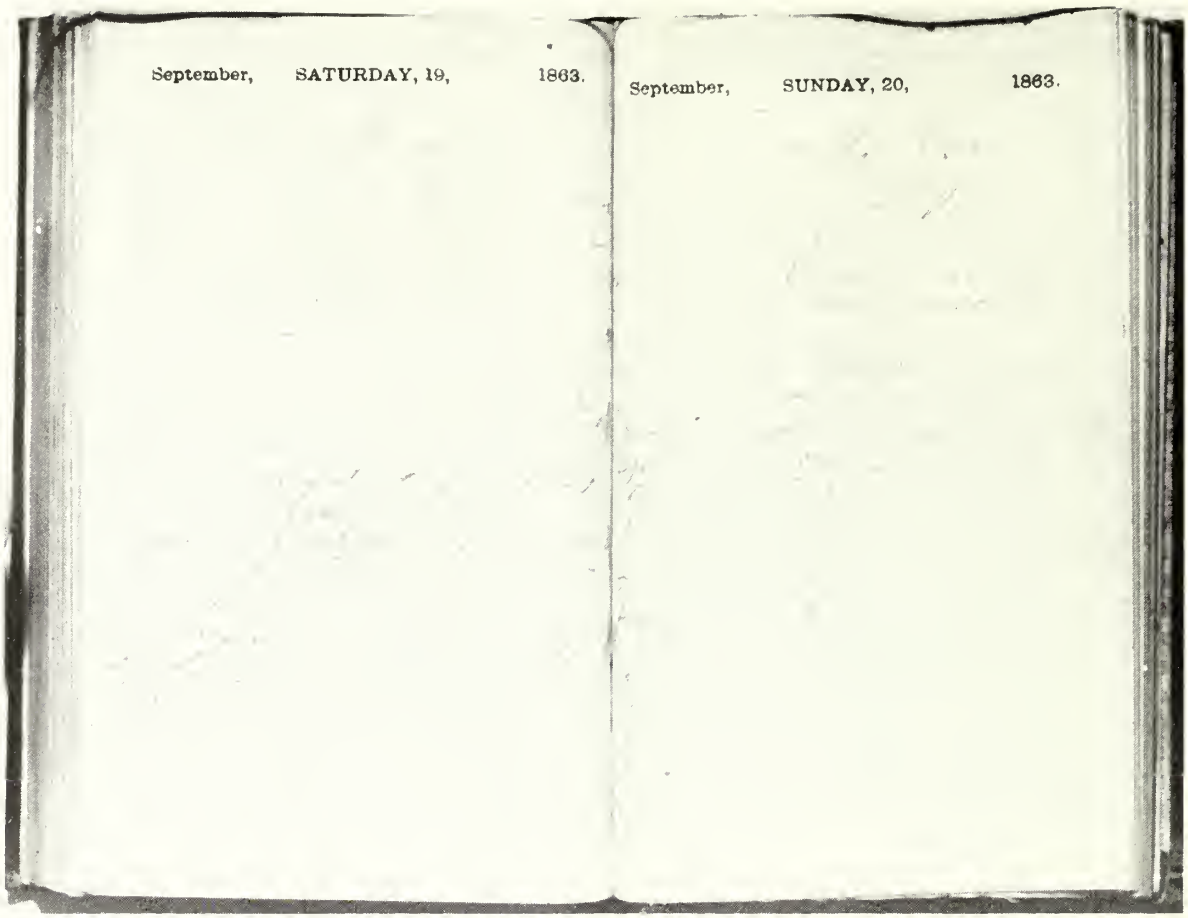
Rush Medical College was located in Chicago and received its charter from the State of Illinois in 1837. During the time Dr. Little attended the school, two periods of study were offered. The first, or Spring semester, was 16 weeks of two lectures daily. The second period offered in the Fall, consisted of lectures and clinical work at the City Hospital, City Dispen-

While the author was an undergraduate at Kansas State College he chanced upon a manuscript owned by Dr. and Mrs. E. R. Frank of Manhattan, Kansas, dating back to the Civil War. This work was a diary written in 1863 by an uncle of Mrs. Frank, Dr. Charles F. Little. Dr. Little was a Manhattan, Kansas doctor for over sixty years and upon his death in 1932, the diary became the property of his family in Manhattan.

The book, well preserved, was written in pencil and consisted of 365 entries. In addition, the diary contained twelve double ledger pages and a calendar of the year 1863. Bound in leather with a leather clasp, the book was of a size easily carried in a coat pocket. The pages were edged in gilt and there was a loop of leather attached to the back cover in order to carry a pencil. Though somewhat dimmed by time, the entries were legible and reading the small Spencerian script revealed much of the personality of the young doctor and some of his experiences while he served in the Union Army during the middle of the War Between the States.

In writing this paper, it was the author's desire to present this diary as an example of a manuscript of historic interest to those interested in the period of the Civil War and also to those interested in medicine in the nineteenth century. In doing so, he would like to acknowledge the invaluable assistance of Dr. and Mrs. Frank and their son, Dr. Robert Frank. In addition, sources of information were supplied by Mrs. Russell Dary of Manhattan, Kansas. Gratitude is expressed to Dr. George Hoover for aid in supplying the photographs.

This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Evans is now serving his internship at the Bethany Hospital, Kansas City, Kansas.


September, SATURDAY, 19, 1863.

September, SUNDAY, 20, 1863.

Photograph of a page from the diary of Dr. Little.

sary and Chicago Charitable Eye and Ear Infirmary. During the 1860's there were 12 professors teaching in the Fall semester and about as many more teaching the "Preparatory School" in the Spring. Tuition fees were $70 per year.[7]

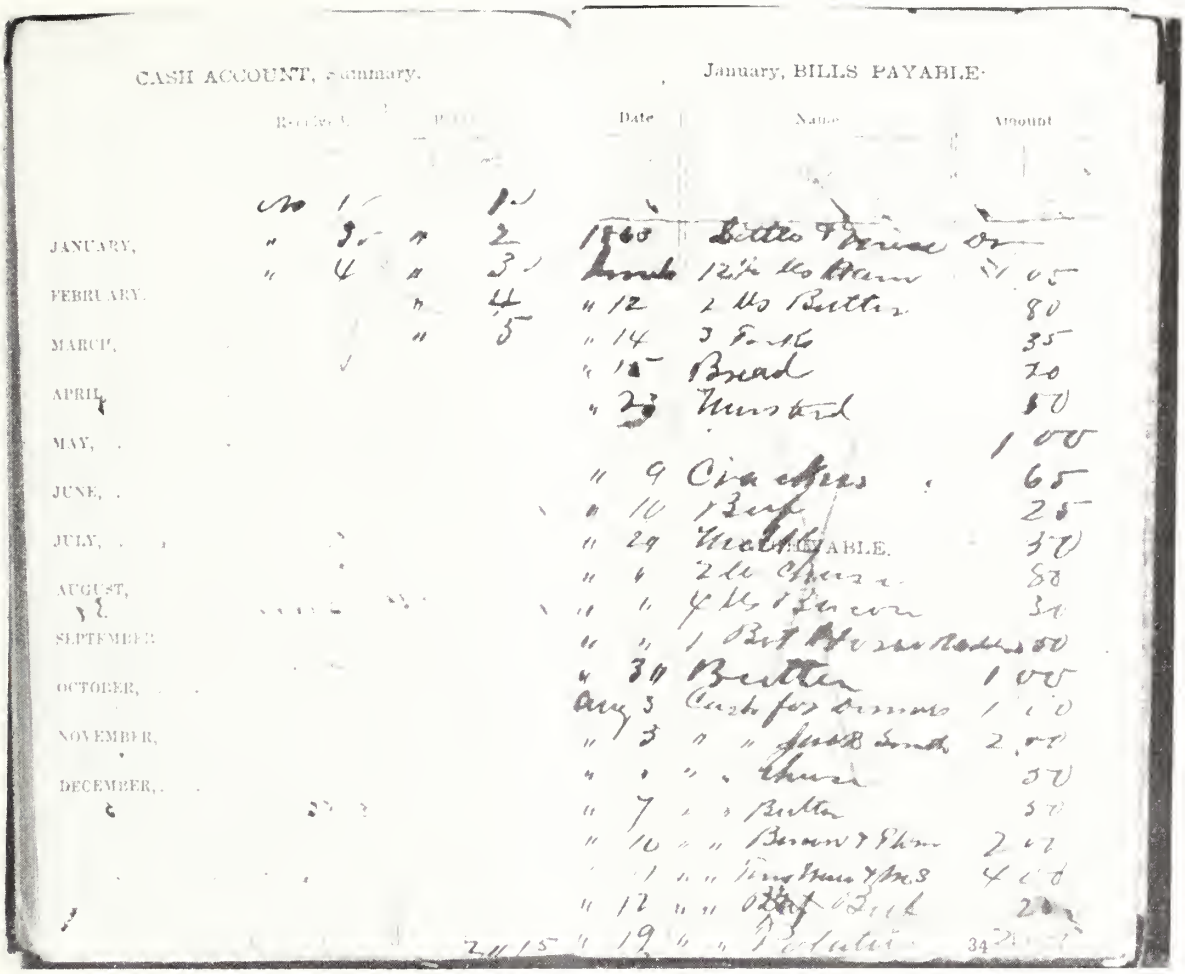
In January 1863, Charles Fredrick Little graduated from Rush. The week before graduation the students were examined, and on the *21st of January*, in Dr. Little's own words: "In the eve. came the long expected moment when I received a diploma. 58 received the degree of M.D. The diplomas were delivered by Prof. Brainard and followed by a few appropriate remarks. Prof. Rea delivered the valedictory address which was applauded by all. Thus after three years and overly hard work, I have earned the degree of M.D."

On the 22nd of January, 1863, Dr. Little went before the Army board and passed the examination for Assistant Surgeon in the Union Army. Most of the Northern medical officers were commissioned by State governors rather than by the President. A few states needing medical officers gave lax examinations or gave commissions without examination. In Illinois, however, a policy of strict examinations was carried out.[1] After passing the examinations, Dr. Little returned to his home in Kewanee to await his commission.

Medical Corps

In 1861, at the onset of the war, the Medical Department was unprepared. Its Chief was Colonel Thomas Lawson, and he commanded only 113 men with an annual budget of less than $200,000. But by 1865, over 12,000 doctors had seen service. This number was made up of the regular Medical Corps, volunteers and those men commissioned by states. In addition, there were "contract" surgeons who received pay of first lieutenants but were not commissioned. With an increase in force, it was decided that new leadership was needed, so in April 1862, William A. Hammond became Surgeon General.

A young surgeon, Dr. Hammond acted with the Sanitary Commission (a reform group established May, 1861, to investigate health conditions in the Union Army) to prepare 151 general hospitals having a total of 55,000 beds. In addition, field hospitals were set up and regiments supplied with medical equipment, drugs, and a staff. Also, an ambulance corps was organized.



Photograph of ledger page from the diary of Dr. Little. The money to pay for the above items came out of his pay which was about $110 a month.

Dr. Little was assigned to duty with the 19th Illinois Infantry stationed in Tennessee. Under the command of General Rosencrans, this regiment was part of the Army of the Cumberland. Before joining his regiment, however, Dr. Little went to Springfield to receive his commission. On *February 15, 1863*, while awaiting the arrival of papers, Dr. Little described President Lincoln's house in Springfield. "Saw Lincoln's residence. It is a two-story home with a small yard and altogether about as unpretentious as is its owner."

Commissioned

Tuesday the 17th he wrote, "Received my commission and other papers and am ready for a start in the morning. Now for the try of war." Leaving Springfield the 18th of February, Dr. Little traveled by rail to Nashville and arrived there at 6 p.m. on Friday the 20th. "Nashville is a beautiful city," he wrote, "but shows the effect of secession. It is very strong and if the Rebs try to take it they will be sorry."

After visiting several army hospitals at Nashville, Dr. Little took the train for Murfreesboro, Tennessee, a town 40 miles southeast of Nashville. Near Murfreesboro, the 19th regiment was camped and it was here, February 26, 1863, that Dr. Little started army life. He wrote, "Spent the day in camp and found it much better than I had expected. Although the diet is common, yet it is such that a man ought to live."

At this time, the Civil War had been in progress nearly two years. After the surrender of Fort Sumter on April 13, 1861, to the Southern General, Beauregard, President Lincoln called on the North to organize an Army. In July, 1861, the Confederate Army proved its might by winning the Battle of Bull Run in Virginia. East of the Appalachian Mountains, the Northern General, McClellan, was defeated in 1862, by Generals Lee and "Stonewall" Jackson. In August, 1862, General Pope, another Northern commander, was defeated by the same generals at the Second Battle of Bull Run. Then General Lee crossed the Potomac and engaged Northern General McClellan at

Antietam, Maryland in September, 1862, one of the bloodiest battles during the war. Meanwhile, on the west side of the Appalachian Mountains, fighting occurred in Tennessee. April, 1862, the battle of Shiloh occurred. Shiloh, in southern Tennessee was the scene of a Northern victory. And on the seas in the same year, Admiral Farragut attacked and captured New Orleans. The close of 1862 found Northern Generals Sherman and Grant attempting to capture Vicksburg. Near Nashville, the Army of the Cumberland was gaining strength for that which was to come.[2, 3, 8]

Army Medicine

The type of medicine practiced in the Union Army is interesting. During the first six months of his service, Dr. Little had very little experience with wounds. However, illness was prevalent in camp and in 1863, in the Union Army, there were 2,696 cases of disease annually per thousand troops and 63 deaths annually per thousand. Of these diseases, the diarrhea-dysentery group predominated with 711 cases annually per thousand troops. Malaria and related diseases were next in number with 522 cases. The respiratory diseases while less in number took a large toll of man hours with a total of 261 cases. Keeping in mind that these figures depended entirely on the diagnostic ability of the medical staff, it is seen that disease resulting from the filthy sanitary conditions of the camps was common.[1]

Dr. Little was ill a good bit of the time, especially during the Spring and Summer. *March 11* he wrote, "Slept cold and at 4 a.m. spread my blanket on the ground in front of the fire and had a good nap." *Thursday 19.* "Spent a restless night and arose sick. About 9 I had a chill which was followed by fever lasting all day." The illness lasted three days, and was characterized by weakness and fever.

One week later, "Moved a camp one-half mile. Our camp was moved into an old mule yard and the ground was unfit for a camp." Three days later, "I enjoyed the pleasure of having a light shake of the ague." *"May 22.* Had an ague about noon and did not feel well all day." He recovered in five days; but from June the 6th to the 24th, Dr. Little was obliged to remain in his tent because of illness, though he did not describe his symptoms.

July 13 he continued, "Had another attack of diarrhea and was quite sick all night." This lasted three days, again *July 25* he wrote of illness, "Awoke in the morning with diarrhea and vomiting. I am weak and cannot eat anything." He remained inactive for a week, and on *Sunday August 2* the diary related, "Felt quite weak and passed the day in reading and writing letters. Have one very sick man in the hospital with dysentery."

When he was well, however, he prescribed for the others who were ill. A case report by Dr. Little in *The Medical and Surgical History of the War of the Rebellion* is of interest.[11]

Case 109

"Pvt. Myron Balch, Co. B 9th Mich. was admitted April 2, 1864 with a fever which presented distinct remissions, and was treated with 10 gr. quinine during each remission until the 10th, when he became delirious, had iliac tenderness, diarrhea and hemorrhagic stools. Stimulants were given and persulphate of iron, one grain every two hours. He died on the 16th. Post mortum exam. 24 hours after death: Brain and its membranes anaemic. Posterior three-fourths of upper lobe of right lung hepatized; left lung normal; heart normal; small white clots in both ventricles. Liver fatty; ileum for 12 inches above the ileo-caecal valve, ulcerated in patches varying from the size of a pea to that of a dollar, the largest being nearest the valve etc."

Act. Ass't. Surg. C. F. Little
Chattanooga Hospital, Tenn.

The case was typical of illness seen by the medical staff. Besides the previously mentioned treatment, diarrhea was treated with opium and laxatives. Before Surgeon General Hammond banned their use in May, 1863, calomel and tarter emetic were administered. Both mercurial in nature, the adverse effects outweighed the good. Typhoid fever was treated symptomatically with opiates, hot compresses to the abdomen and small doses of turpentine. Alcoholic beverages were prescribed frequently in collapse or prostration. But the most important treatment, i.e, proper diet, fresh fruits and vegetables and good nursing was often lacking.

Diet was poor. Consisting of hardtack (often called "worm castles" by the troops), salt beef and pork, beans, potatoes, and a meager supply of desiccated vegetables, the food was poorly cooked by the inexperienced troops. If one had money it was possible to supplement the diets from stores of the sutlers.* Prices were out of line, however, as the illustration from one of the ledger pages of Dr. Little's book shows. Scurvy was common, and this condition persisted despite unsuccessful attempts by the Sanitary Commission to improve the diet.

One of the weakest areas in the care of the wounded was in transporting the wounded to the doctors in the field hospitals. After a man was hit, he might remain on the battlefield for days before being picked up, especially at the beginning of the war. Ambulances were scarce and the men who maintained them were said to be cowardly. However, in 1864, a bill passed Congress establishing a legal ambulance corps. This bill was championed by Dr. Henry I. Bowditch, whose own son died on the field for lack of an ambulance.

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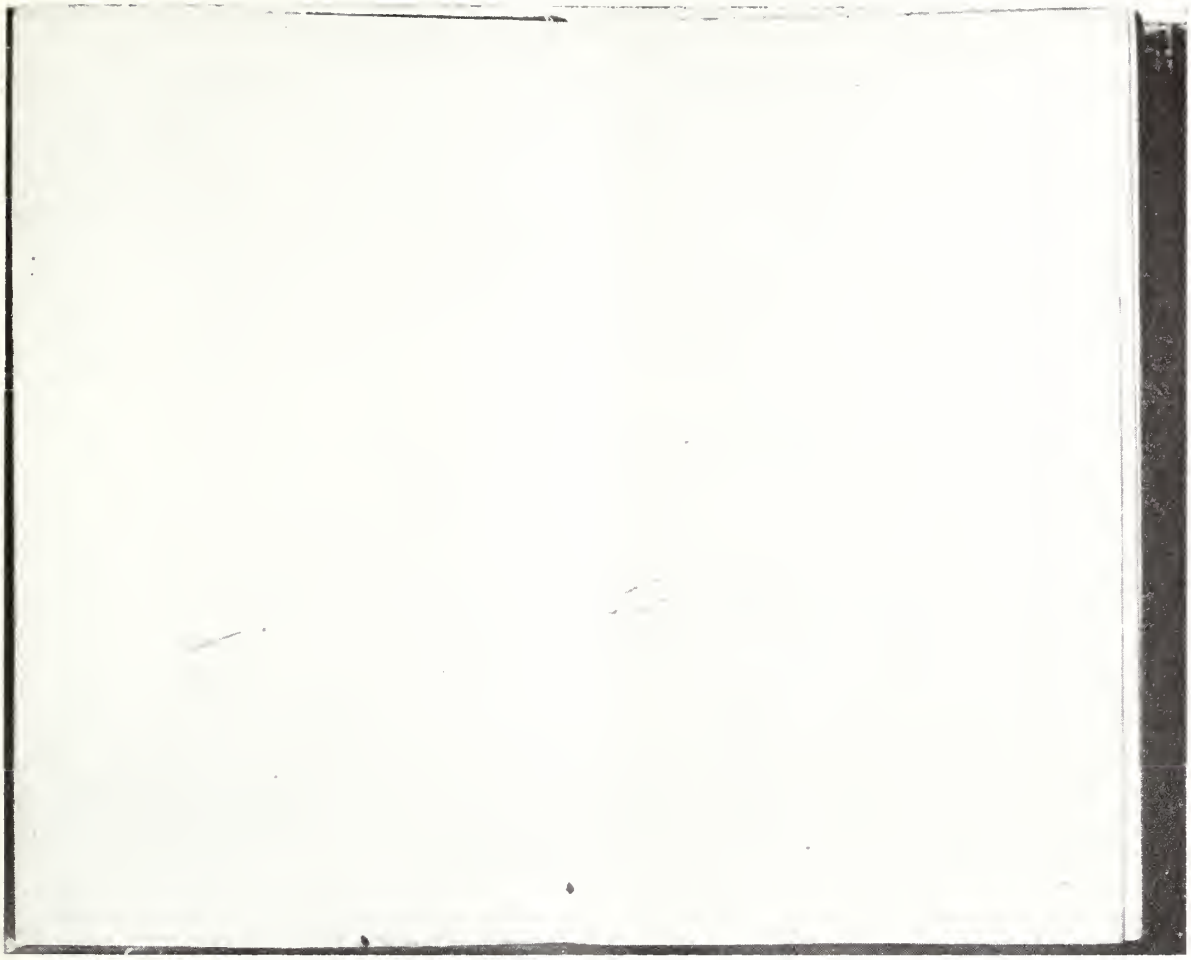
* sutler, n. A person who follows an army and sells provisions, etc., to the soldiers. (American College Dictionary, 1953.)



Photograph of inside cover of Dr. Little's diary showing his signatures before and after enlistment in the Union Army.

The hurried surgery, often done in the open air on the crudest of operating tables, was characterized by an almost deliberate lack of asepsis. The surgeons, wearing linen aprons smeared with pus and blood, would operate bare-handed with their sleeves rolled up to their elbows. Surgeons not seldom held their knives between their teeth while their hands were otherwise occupied. Following surgery, the wounds were washed in tap water and a single sponge served to bathe the wounds of an entire ward.

The chief anesthetic was chloroform, but ether was used also. More often than not, probing for bullets was done without any anesthetic and shrieks and groans would alarm those waiting their turn.

Amputations were quite common in the event of severe injury to limbs. Dr. Little mentioned amputation of the thumb, little finger, leg, and so on. All wounds were expected to become infected; in fact, it was thought to be a normal affair and part of the body's natural mechanisms to heal by suppuration. Carbolic acid was used locally, but an infection was allowed to reach serious proportions before using the disinfectant. Other antiseptics used sparingly were chlorine and charcoal, potassium permanganate, and sodium hypochlorite.

Bullets were the largest cause of battle wounds at that time. The Union had about one-quarter of a million patients suffering bullet wounds during the war. Of these, about 14 per cent died; hemorrhage and sepsis taking their toll. In cases of severe bleeding, the artery was tied with silk thread, the end of which was left hanging from the wound. Everyday, the surgeon would tug on the thread to see if a slough had occurred. If it came away and a good clot had formed, all was well. Sometimes the clot came away also, and a second hemorrhage occurred. Almost all bullet wounds were infected when the surgeon saw the patients. Unlike the modern steel jacketed bullet, the soft lead musket ball with its low velocity lost shape on impact and carried contaminators into the wound. Pyemia, tetanus, erysipelas, osteomyelitis and hospital gangrene often ensued.[1]

First Battle Experience

Four days after arriving, Dr. Little got his first experience with wounded troops. "Was called at 5 o'clock to go with an expedition. We went to Readyville and had quite a cavalry fight. Our loss was one killed and ten wounded and one prisoner. I dressed all the wounded but two. Put up at a farm house and had a good place to sleep. Our wounded I sent to Murfreesboro."

After the initial excitement of the new Army life, Dr. Little settled down to the routine duties of his position. Each regiment had one Surgeon and two Assistant Surgeons. It fell to these men to prescribe for the sick in the morning, attend dress formations in the afternoon, and take call at night. Many reports and forms had to be made out, and by May, Dr. Little was discouraged with camp life. "*Sunday May 3.* No excitement to break the monotony of camp. Although the country is indeed beautiful, yet I began to long for a move with its new scenes, new duties and new excitement. *Saturday May 9.* It has been some time since I received a letter from home and I am getting so that I do not look for letters but take what come and am satisfied. *Wednesday May 13.* There is no news from the front today. How strange it is that men, capable of such refinement, cannot find some other way to settle their troubles than killing each other by thousands."

But on *Thursday May 14,* he wrote: "My heart would rejoice to have the rebels attack us here and although I am a noncombatant, yet I cannot avoid a hatred for those I know would kill my brothers or friends. This hatred will be buried only when they shall return to a grand old flag and taking shelter behind its fold, wash away the stains of blood that are on it."

However, the rebels did not attack the regiment and except for minor skirmishing the ennui continued until June. *June 5,* Dr. Little wrote: "In the afternoon I went over to Rousseau's division and saw a man hanged for killing another man. It is indeed a frightful thing for a man to pass through. He was cool and firm all through the terrible ordeal but when they were letting down the drop (which did not fall readily) his whole frame shook violently. After falling the body struggled violently for some moments."

June 25, the 19th regiment left their old camp near Murfreesboro and moved a short distance and came upon heavy firing. *June 26,* "At 7 o'clock we moved out and went to the front. Had skirmishing all day and cannonading from 7 til dark. We camped for the night in Birch Grove, an old camp of the rebels and found many shot and shell in camp. Found 12 dead rebels yet unburied in this old camp. Saw a flag of truce going up in the afternoon. Retired in the ambulance for another night's rest."

July 4, the regiment started moving toward the Cumberland Mountains. Moving a regiment and its supplies was never an easy task and because of rain and poor roads, it took much time and energy. Dr. Little related one such episode. "Five o'clock, orders came to start for Salem—distance five miles. The rain was falling in torrents but at the appointed time we were on the move and such roads—we were till 11 o'clock coming the five miles and some of the way the mud and water was up to the horses breasts. And the men in the dark plunged into the mud knee deep. Yet the time was shortened with songs and jokes."

Due to rain and the difficulty in getting supplies (the regiment was on half rations for at least three days), they did not reach the Cumberland Mountains until about August 10. The scenery was very pleasing to Dr. Little, and he wrote: "How I love to enjoy the beauties and comforts of this climate. It must have been all the heart could wish in times of prosperity." "We're up at an early hour and by six o'clock we were on the march. The grand old mountains rose up before us and we soon began to ascend them and to wind among the rocks. Cedars, birch and oak trees cover the sides." "How I love to look upon the everlasting hills with their grey old rocks and birch trees and the stunted cedar trees."

The month of August was spent in moving toward the Tennessee River. *September 1,* Dr. Little wrote: "Passed through the town of Stevenson and crossed the Tennessee River about 2 miles from that place on a fine pontoon (bridge). I much regret that we crossed after dark and I could not see as much of the bridge as I wished to." He added in parentheses, "There are 59 pontoons in the bridge."

During the early part of September, the 19th regiment drew near to Chattanooga. After moving into Dade County, Georgia, the regiment marched along Lookout Mountain Range.[3]

Dr. Little observed a massing of Union Forces, and on *Sunday 13,* he noted: "Troops are concentrating and the indications are that a battle will be fought near this place. Had orders to be ready to move at a moment's notice with three days rations. General Thomas' corps is here and McCook is somewhere on our right. Do not know the strength of the enemy." Six days later the decisive battle of Chickamauga took place.

Chickamauga's Wounded

Dr. Little was confronted with problem of the wounded who fell during the bloody battle of Chickamauga. General Rosecrans' Army of the Cumberland (including Dr. Little's regiment), met a shattering defeat September 19 and 20 at Chickamauga, located 12 miles southeast of Chattanooga. Improper location of the hospitals and the lack of adequate supplies hampered the care of the wounded to such an extent

Map of area Dr. Little described in his diary. His route is represented by a broken line. Towns mentioned in the diary are underlined. (Commager, H. S. *The Blue and the Grey.* Bobbs-Merrill, 1950.)

that one historian termed the affair, "One of the worst medical failures of the war."[1] The corps hospital was established at Crawfish Springs, three miles south of the right wing of the Union Army. During the battle, fighting moved northward, increasing the distance from the hospital to about four miles. Congestion on the single road to the hospital, plus the exposed position of the hospital led to confusion, and in the course of the fighting, the hospital was shelled and finally captured by the Confederates. Though some wounded were hastily moved to Chattanooga, many were left on the field and were captured.

Friday September 18. "We went into camp at Crawfish Springs. There was skirmishing on our left most of the day and our move in the afternoon was in that direction. *Saturday 19.* Was up at 4 a.m. and soon after, skirmishing began and at 3 p.m. the battle opened and raged till after dark. Our division became engaged at 5 and we had four men wounded. The fire was very heavy and our loss must have been from fifteen hundred to two thousand. I visited Crawfish Springs in the morning and it surpassed anything I ever conceived. I was under fire some of the time and it was as warm as I want to stand. *Sunday September 20.* At an early hour we were up and about eight the battle opened. It was a furious engagement and about noon the enemy threw massed troops upon our right and right flank which gave way. I was to the right of the break and lost my hospital tent and blankets. There was no more fighting till night which closed the conflict for the day. I was orderd to Chattanooga and arrived there late at night. Our army fell back six miles."

In Chattanooga, things were not much better. Surgeon Moses was ordered to prepare hospitals for 3,000 men in Chattanooga the day before the battle. He found, to his dismay, supplies and shelter for only 500 wounded. During the battle the number of wounded grew to 7,500. Makeshift hospitals and commandeered homes were pressed into action and confusion reigned. To make things worse, railroad connections with Nashville were severed by the Confederates and food and supplies quickly dwindled in Chattanooga.

September 21. Dr. Little wrote: "I was busy all day dressing wounds and assisting in operations. Hospital is the place to see the horrors of war. Wounds of all kinds and in all situations. I worked from morning till sundown." The next day, he wrote: "Was engaged all day in attending to the wounded and in the evening performed the operation of resection of the head of the humerus. I dressed the wounds of about 40 men in the day."

"*September 24.* We are in a field hospital about

two miles from Chattanooga and have good water. I have lost no wounded in my ward yet, but have some very severe cases." But on *September 27*, he wrote: "The men of Ward 17 are all comfortable but one and I think he will die. I am very sorry to have it so but cannot help it."

Things looked bleak in Chattanooga in October. The Army was blockaded in the city and was awaiting General Hooker's army to open the railroad from Nashville.[3] *October 24*. "Rations are very short and many of the men are sick. Horses and mules have nothing to eat here for three days at a time. *October 25*. We learn that Hooker is drawing the rebs. We must have the railroad in one week or give up the city."

On October 28, Hooker arrived in strength and opened up the communication and supply routes after a 2½ hour battle. During the next month the Army entrenched in Chattanooga recuperated and gained strength for the ensuing battle of Chattanooga.

November 23, 24, and 25, Dr. Little observed the battle: "We still remain on pickets and in the afternoon about 1 o'clock at the same time all the troops in Chattanooga began to fall in and it was a grand sight to see them—as soon as formed into brigades they commenced to move out our works at two openings and one would think it a solid stream of men. They moved to the left of the city and soon engaged the enemy where a sharp skirmish occurred resulting in our taking the first line of rifle pits and about 200 men. Our forces remained all night in full sight of the enemy and there was no change in position. About 10:00 firing could be heard on the west side of Lookout Mountain and it soon became apparent that Hooker was engaging the enemy. He forced them back under the fire of our artillery and about noon he came around the point in fine style. The sight was grand and the fight lasted till eleven at night.

Victory From Defeat

"November 25th was a day long to be remembered by the American people. At an early hour the reports of Sherman's guns on the left reached our ears and the battle continued all day. Between 3 and 4 p.m. our long line on the west side of Missionary Ridge was ordered forward and made a splendid charge across an open field and up Missionary Ridge taking many men and several guns and deciding the battle (40 pieces of artillery were taken at Missionary Ridge)."

The victory at Chattanooga opened up the March to Atlanta by Sherman and was an important one to the Union Army, and especially to Dr. Little. Still in Chattanooga, December 16, his words reflected the feeling at that time: "While I note this our Best Brigade Band is playing a merry retreat and all is happy. My health is excellent and I weigh 155 lbs. —11 lbs. more than ever at home."

Dr. Little's diary ends December 31, 1863, and we know little of his experiences until July, 1864, when his term of service expired. At that time he went to Princeton, Illinois, and began practice.[6]

In July, 1866, he came to Manhattan, Kansas, where he practiced until he retired in 1917. In 1875 he was elected member of the Kansas House of Representatives. He was influential in supporting the establishment of Kansas State College in Manhattan. He was chairman of the Riley County Republican Central Committee and was appoinnted by President Arthur to the examining board of Civil War veterans for pensions, serving until President Wilson's administration. He was instrumental in getting the Carnegie Library established in Manhattan.

Dr. Little often rode horseback to visit his patients, carrying his medicines in a saddlebag and relying on the stars to find his way across the prairie at night. In 1915 Dr. Little and his daughter, Dr. Bessie Belle Little, a physician as was her father, founded the Charlotte Swift Memorial Hospital named for Dr. Charles Little's wife who died in 1909.[10]

Though no longer in active practice, Dr. Little served as President of the Riley County Medical Society in 1922, the same Society he helped found in 1902.[4]

Dr. Little died November 17, 1932, at Manhattan. The cause of his death was listed as chronic myocarditis. He was 96 years of age.

During the last 70 years of these, he may often have reminisced over the last entry in his diary: "December 31, 1863: With this day ends the year 1863, a period of far more importance to me than any previous year of my life."[9]

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PHYSICIANS' ACTIVITIES

Dr. Kermit E. Krantz has been appointed professor and chairman of the department of obstetrics and gynecology at the University of Kansas School of Medicine. The appointment is effective July 1, 1959. He will fill the chairmanship held for 30 years by **Dr. Leroy A. Calkins,** who is relinquishing the post to fulfill the university's age requirement for department head's responsibilities. Dr. Calkins will remain on the faculty as professor in the department. Dr. Krantz, a Markle Scholar in Medical Science since 1957, has been assistant professor of obstetrics and gynecology at the University of Arkansas since 1955. He received his M.D. from Northwestern, as well as bachelor's degrees in science and medicine; and a master's in science and anatomy at the same school.

James A. Wheeler, M.D., Axtell Clinic, was the guest speaker at the annual initiation banquet of Phi Sigma (honorary biological fraternity) on Wednesday, May 6, at Oklahoma State University, Stillwater, Oklahoma.

Doctor Wheeler's topic was "New Thoughts in Clinical Medicine."

Dr. Jack Coyle, Coffeyville, was the winner of the Kansas Medical Society's golf tournament. In the competition held during the annual state meeting in Topeka, Dr. Coyle shot a 74 while runner-up, Dr. Ed Ashley of Chanute, carded a 78.

In the trap-shooting competition, **Dr. Bill Smiley** of Junction City, shared top honors with **Dr. W. A. Smiley** also from Junction City and **Dr. Shirley Clark,** Topeka.

Dr. Robert Crawford of Hutchinson was elected president of the Society's Golf and Trap Association.

"Doc Adams" of the television show "Gunsmoke" was invited by the Society to attend its annual meeting in Topeka and receive a special citation. The citation which was inscribed:

> The Kansas Medical Society Outstanding Service Award for 1959 to Mr. Milburn Stone for his characterization of "Doc" Adams in "Gunsmoke."
>
> Because of the warmth, the integrity and the humanity of his portrayal of a pioneer Kansas physician in the television program "Gunsmoke,"
>
> And because as "Doc" Adams he performs a notable service to the medical profession in bringing to the people of this nation a better understanding of the doctor,
>
> The Kansas Medical Society on the centennial of its founding takes pride in presenting to Mr. Milburn Stone this Outstanding Service Award.
>
> Presented May 5, 1959 at Topeka, Kansas, (Signed) **T. P. Butcher, M.D.,** President.

was presented at the Society's Tuesday night banquet before more than 370 members and guests. After receiving the award in the person of Milburn Stone, his true identity, he quickly doned his western doctor's role and aided by "Miss Kitty" put on a delightful 30 minute show. After the banquet "Doc and Kitty" spent more than an hour signing autographs for the guests.

Dr. William Porter, a 1953 graduate of the University of Kansas Medical School, moved his office from Minneola to Tribune in Greeley County. He will join **Dr. Willard Werner** who has been the county's only physician.

Atwood, Kansas will have a new doctor, **Dr. Kenneth E. Bickford,** who has been practicing in Wakeeney for several months. He is a graduate of the University of Kansas Medical School and has served his internship at St. Francis Hospital in Wichita.

Dr Funston J. Eckdall was named man of the week by the Emporia *Gazette*. He has recently been elected as vice-president of the American Association of Railway Surgeons. Dr. Eckdall's father, **Dr. Frank A. Eckdall,** also from Emporia, is former vice-president of the Association. Dr. F. J. Eckdall will serve a three year term and then will succeed to the presidency. The Association represent all railroads in the United States and has a membership of between 4,000 and 5,000.

Dr. Eckdall began his medical practice career with his father following his internship. During World War II he was a captain and afterward succeeded his father as the Santa Fe doctor in Emporia.

Dr Thomas P. Butcher, Emporia, past president of the Kansas Medical Society, spoke to the annual meeting of the Kansas State Bar Association. The Association's meeting held last month was attended by more than 600 members of the Bar. His topic was "The 5th Demention" an exploration into the ultimate reality in a physical world.

Governor Docking appointed **Dr. Lloyd G. Schwartz,** Topeka physician, as the new Shawnee County coroner last month.

He will fill the unexpired term of the late **Dr. Donald H. Macree.** Dr. Schwartz was born in Topeka and is a graduate of the University of Kansas Medical School. He has been practicing in Topeka since his discharge from the medical corps following World War II. He served in the Philippines during the war.

Dr. Schwartz is 44, and has three children. He and his wife reside in Topeka.

Dr. James G. Stewart, a retired Topeka physician, was one of three Washburn University graduates to receive a Distinguished Service Award from the University alumni association this month.

The awards were given at an alumni dinner at the Student Union on the Washburn campus.

Dr. Stewart was honored for his service to Topekans during his more than 30 years of practice in the community. He studied law at Washburn before switching to medicine and was graduated in 1909. He retired in 1950, and has been active in adult education at the university since his retirement.

"Hypnosis is an ancient science rather than new," reported **Dr. E. Raymond Gelvin** to members of the Concordia Rotary Club last month. He became interested in hypnotism several years ago and related a number of occasions where the science is beneficial. especially in the field of medicine.

Dr. Marion F. Russell, Jr., who has been affiliated the past three years with the Mayo Clinic, returned to Great Bend last month to practice medicine. He will be associated with his father, **Dr. M. F. Russell, Dr. Homer B. Russell,** and **Dr. Dave Shivel.**

A graduate of K.U. Medical School he studied for two years at Northwestern University before enlisting in the Navy. He has been in advanced pediatric training at the Mayo Clinic since his internship at the Cook County Hospital, Chicago.

Dr. W. Clarke Wescoe, dean of the University of Kansas School of Medicine, was granted a six months leave-of-absence to serve as guest instructor in pharmacology at the medical school of the University of the Philippines in Manila. He left Kansas City for this assignment last month and will return in October.

ANNOUNCEMENTS

The National Library of Medicine has just issued *Fungus Infections,* a bibliography on systemic and superficial fungus infections. This is another in its series of selective bibliographies on subjects of current interest. Others in the series are on space medicine, cancer chemotherapy, and staphylococcal infections. A complete list of such bibliographies is available. Single copies of the bibliographies can be obtained at no cost upon request to the Acquisition Division, National Library of Medicine, 7th Street & Independence Ave., S.W., Washington 25, D. C.

Applications for certification (American Board of Obstetrics and Gynecology), new and reopened, Part I, and requests for re-examination Part II are now being accepted. All candidates are urged to make such application at the earliest possible date. Deadline date for receipt of applications is August 1, 1959. No applications can be accepted after that date.

Candidates are requested to write to the office of the Secretary for a current Bulletin if they have not done so in order that they might be well informed as to the present requirements. Application fee ($35.00), photographs, and lists of hospital admissions must accompany all applications.

The Third International Congress of Physical Medicine will be held in Washington, D. C., U. S. A., from August 21 through August 26, 1960. This Congress will assemble physicians and other profes-

sional personnel from all parts of the world concerned with the furtherance and scientific development of physical medicine and rehabilitation. This is the first International Congress of such character and magnitude to meet in the United States. International Congresses have been held in London in 1952, and in Copenhagen in 1956. It is the objective of the Congress to further the development of knowledge and professional and technical skills through the exchange of information concerning the advances made in the field of physical medicine and rehabilitation.

The University of Southern California School of Medicine will offer another Postgraduate Refresher Course in Hawaii and on board the *S.S.Lurline* from July 29 through August 15, 1959. In addition to the lectures, there will be workshops in ECG and X-ray interpretation as well as problems of water and electrolyte balance and the differential diagnosis of jaundice.

Further information about the Course may be obtained by writing to the Director of the Postgraduate Division, USC School of Medicine, 2025 Zonal Avenue, Los Angeles 33, California.

The Department of Otolaryngology, University of Illinois College of Medicine, announces two special postgraduate courses to be offered in the fall of 1959: ANNUAL OTOLARYNGOLOGIC ASSEMBLY—The Assembly will be conducted September 18 through September 26, 1959, and will consist of a series of lectures and panels concerning advancements in otolaryngology. Some of the sessions will be devoted to surgical anatomy of the head and neck and histopathology of the ear, nose and throat. Guest lecturers will participate in an entire day's program reviewing the latest advances and principles of temporal bone surgery.

COURSE IN LARYNGOLOGY AND BRONCHOESOPHAGOLOGY—The course in laryngology and bronchoesophagology, is scheduled November 9 through November 21, 1959. Interested physicians should write direct to the Department of Otolaryngology, 1853 West Polk Street, Chicago 12, Illinois.

The American Cancer Society will conduct a two day symposium on "The Evaluation of Early Diagnosis of Cancer." It will be presented at the Society's Annual Scientific Session held in New York, October 26-27, at the Biltmore Hotel.

The program is fully approved and recommended by the American Academy of General Practice for 12 hours of Category II Credit for its members.

NEWS NOTES

Television Series Annual Meeting Feature

A series of four half-hour television programs summarizing top scientific events was a feature of the American Medical Association's 108th annual meeting in Atlantic City this month.

Originating each day at 5:30 p.m. June 8-11, from a special studio in Convention Hall, the American Medical Association's "Bulletin of the Air" was seen in the Philadelphia-Atlantic City area over a local TV station.

On each telecast, meeting participants who made scientific "news" during the day will present capsule reports to the television audience. The programs—featuring Philadelphia newscaster Taylor Grant—were designed to keep physicians informed of newsworthy events and at the same time show the general public what goes on at an A.M.A. meeting.

Film recordings made of the "live" telecasts will be edited into motion picture "Highlights of the 108th Annual Session" for fall distribution to medical meetings throughout the country.

'Medicine—a Lifelong Study' Theme of Chicago Conference

Patterns of success and patterns of failure in the great cooperative movement to improve the health care of people everywhere will be exchanged and compared when medical educators from 50 different countries gather in Chicago for the Second World Conference on Medical Education, August 29 to September 4.

This seven-day meeting, jointly sponsored by the great world bodies of medicine, will provide a common ground for the free exchange of scientific information and experiences between countries. In this way, a treasure-house of ideas and a compendium of knowledge in the broad field of medical education will flow from the more advanced countries to those now moving into the full light of medical progress.

The conference is being held under the auspices of the World Medical Association, which was founded 12 years ago, one of its 7 objectives being "to assist all peoples of the world to attain the highest possible level of health." The association is now composed of 55 national medical associations representing about 700,000 physicians.

President Eisenhower, who has been keenly interested in the financial problems of medical schools ever since his days at Columbia University where he helped organize the National Fund for Medical Education, is patron of the conference. He has been invited to address the opening plenary session on Monday, August 31.

Committees for 1959-1960

Allied Groups

W. M. Cole, Wellington, Chairman; J. J. Basham, Fort Scott; M. L. Belot, Jr., Lawrence; H. O. Bullock, Independence; A. R. Chambers, Iola; F. J. Eckdall, Emporia; F. B. Emery, Concordia; J. H. Gilbert, Seneca; D. A. Huebert, Wichita; J. B. Pretz, Kansas City; D. J. Smith, Overland Park; N. C. Smith, Arkansas City; M. O. Steffen, Great Bend.

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Emergency Medical Care

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Anesthesiology; J. G. Claypool, Howard, Internal Medicine; G. W. Fields, Scott City, General Practice; W. H. Fritzemeier, Wichita, Dermatology; L. W. Hatton, Salina, Psychiatry; J. E. Hill, Arkansas City, Ophthalmology; T. C. Hurst, Wichita, Pediatrics; G. B. Joyce, Topeka, Orthopedics; J. G. Kendrick, Wichita, Obstetrics and Gynecology; W. R. Lentz, Seneca, General Practice; W. P. McKnight, Wichita, ENT; P. W. Morgan, Emporia, Internal Medicine; C. R. Openshaw, Hutchinson, Thoracic Surgery; J. E. Roderick, Salina, Urology; S. L. Vander Velde, Emporia, Surgery.

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State Meeting Format

F. E. Wrightman, Sabetha, Chairman; A. W. Beahm, Great Bend; W. J. Justus, Pleasanton; L. H. Leger, Kansas City; M. E. Nunemaker, Hutchinson; R. K. Purves, Wichita; R. C. Tozer, Topeka.

Stormont Medical Library

B. M. Powell, II, Topeka, Chairman; J. A. Dunagin, Topeka; W. E. Hird, Wichita; N. M. Jenkins, Salina; G. A. Lessenden, Lawrence; D. S. Lowe, Hiawatha; M. C. Pearson, Concordia; M. F. Stock, Pittsburg; R. G. Weiner, Halstead; R. P. Woods, Topeka.

STUDY OF HEART DISEASE

L. H. Leger, Kansas City, Chairman; D. R. Bedford, Topeka; J. W. Butin, Wichita; E. W. Crow, Wichita; E. G. Dimond, Kansas City; C. W. Erickson, Pittsburg; P. W. Morgan, Emporia; R. F. Morton, Arkansas City; G. L. Norris, Winfield; L. E. Peckenschneider, Halstead; L. F. Schmaus, Iola; H. B. Stryker, Jr., Concordia; D. C. Wakeman, Topeka; C. J. W. Wilen, Manhattan.

BLUE SHIELD

House of Delegates Resolutions Affecting Kansas Blue Shield

Six resolutions passed by the House of Delegates of the Kansas Medical Society at the 1959 convention in May directly affect Kansas Blue Shield. We are summarizing these resolutions briefly in the following paragraphs:

I. *Blue Shield statement of purpose as adopted by the House of Delegates is as follows:* "The purpose of Kansas Blue Shield is to help preserve the voluntary system of medical care as a segment of the traditional free enterprise system. . . . It was initiated and is sponsored by the Kansas Medical Society to make certain that voluntary health protection be made available to all people of Kansas at reasonable and fair cost and further to conduct research in medical economics."

II. *Blue Shield was authorized by the House of Delegates* to market a service contract with income limits of $4,000 single and $6,000 family with payments to physicians based on the Kansas Relative Value Schedule of $5.00 per unit. This program has been designated as PLAN C and benefits of this Plan would be essentially the same as the present benefits in Plan B.

III. *Approval was given for the continuation of the study of hospital usage* through the Blue Shield Relations Committees. The recommendation asked that local hospital utilization study committees be formed in each medical staff. The process of forming these committees would be carried out through the District Blue Shield Relations Committees.

IV. *Another House of Delegates resolution permits county or regional medical societies to develop special Blue Shield contracts in their area.* This resolution permits a local approach similar to the Lyon County Program. Because of the wide variations in medical practice and private fee systems it is felt that there may be a possibility of working out better plans which will be more carefully attuned to the local needs.

V. *Exploration was recommended with the Kansas Hospital Association by a joint committee in connection with a contract for the aged.* The House of Delegates has approved the idea of a Joint Committee representing Blue Shield and the Medical Society exploring with the Kansas Hospital Association the possibility of developing a special program for people 65 years of age and over.

VI. *Approval was given for adjudication committees* which would involve the use of District Blue Shield Relations Committees as Adjudication Committees for "unusual charges" under an extended benefits case. This type of study had already been approved by the State Blue Shield Relations Committee.

Dr. Ryan Re-Elected

Dr. Edward J. Ryan, Emporia, was re-elected president of Kansas Blue Shield at the annual meeting of the Board of Directors, Sunday, May 3. Dr. Ryan was first elected president of Kansas Blue Shield last year, and has been a member of the Blue Shield Board since May, 1954.

All other officers of the Blue Shield Board were also re-elected. They include Dr. James B. Fisher, Wichita, first vice-president; Dr. E. Burke Scagnelli, Dodge City, second vice-president, and Dr. Lucien R. Pyle, Topeka, secretary-treasurer.

Other physicians elected from the Medical Society Councilor Districts to serve on the Blue Shield Board are: Dr. Thomas G. Duckett, Hiawatha; Dr. David G. Laury, Ottawa; Dr. R. K. Wallace, Manhattan; Dr. C. M. Lessenden, Jr., Topeka; Dr. L. S. Nelson, Jr., Salina; Dr. Norman Hull, Hays, and Dr. Anol Beahm, Great Bend.

Two prominent Kansas businessmen were also elected to serve on the Blue Shield Board to represent the membership. They are George E. Harris, president of the George E. Harris Company in Wichita, and co-author of the book *Sales and Engineering Representation;* and W. Laird Dean, Topeka, chairman of the Board of Merchants National Bank.

Six representatives of the membership serve on the Blue Shield Board, four elected by the State Members' Committee on alternate years, and two are appointed by the Governor of Kansas.

The president and president-elect of the Kansas Medical Society are ex-officio members of the Blue Shield Board.

Fair Weather Drivers

Drivers usually leave their cars at home and take public transportation in bad weather. This was shown in a Chicago study which made a series of traffic counts under varying weather conditions last winter. On clear week days there were about 1,000 more motor vehicles on one expressway than on snowy days. On rainy or snowy Saturdays the decline was about the same. On Sundays in bad weather there were about two thousand fewer motorists.

COUNTY SOCIETIES

Barton County children under the age of 14 received free polio shots under the sponsorship of the Barton County Medical Society last month.

A free diagnostic clinic for crippled children in southwest Kansas was held in Garden City last month. The Finney County Medical Society was co-sponsor of this clinic.

Two Olathe physicians were honored by the Johnson County Medical Society for long years of service at a meeting held last month in Merriam.

Granted honorary life memberships in the county society were Dr. D. E. Bronson, who came to Olathe in 1906 and has been serving the community the past 53 years and Dr. James A. Knoop, a physician in Kansas for 50 years who practiced in McCune and Parsons before coming to Olathe. Dr. Bronson is the dean of all physicians in the county.

The meeting, attended by 40 members, was in observance of the centennial year of the Kansas Medical Society and the 59th anniversary of the founding of the Johnson County Medical Society.

Also honored by the society were Dr. Ralph Major, professor emeritus at the University of Kansas School of Medicine; Dr. Charles C. Dennie, professor emeritus in dermatology at the K.U. school; Dr. Robert Isenberger, professor of pharmacology at the K.U. school and Dr. Cecil E. Tolle, formerly of Overland Park who now resides in Texas.

Seventy-five children were examined at a diagnostic clinic held at Belleville last month. The clinic was sponsored by the Republic County Medical Society, the Kansas Crippled Children Commission and the Kansas Crippled Children Society.

BOOK REVIEWS

Diseases of the Colon and Anorectum. Edited by Robert Turell, M.D. Published by W. B. Saunders Company. Two volumes. Volume 1, 608 pages. Volume 2, 609 pages. Price $35.00.

The editor, a prolific contributor to the modern proctology literature, has 80 collaborators to produce these books. The authors of the various chapters are outstanding men in the fields of anaesthesiology, anatomy, dermatology, general surgery etc. as well as proctologists, and make this a different work on diseases of the colon and anorectum. The chapter on anatomy is written by the investigator whose work is accepted as the latest contribution and its practical application is explained. Anaesthesia in this field is covered by an outstanding anaesthesiologist and by the authors of the various chapters where its application to a given procedure is indicated. The dermatologist's approach to pruritis ani and the proctologist's procedures for correcting associated anorectal pathologies is another example of the coverage of each problem in these books. There are chapters devoted to fluids and electrolytes, nutritional considerations, surgery in the aged, hematologic disorders, and others not similarly presented in previous books on the subject. A chapter on office management should interest most physicians regardless of their specialties. The entire subject matter is presented in a practical manner. The latest additions are included in this work. There are 634 good illustrations. These books should be well received as they fill a need in this important field of medicine.—*L.A.S.*

Current Therapy for 1959. By Howard F. Conn, Editor. Published by W. B. Saunders Company, Philadelphia. 781 pages. Price $12.00.

Any physician who has occasion to face an unfamiliar therapeutic situation, one that he faces so rarely that the details of management are not clear in his mind, has reason to be thankful when he can quickly avail himself of up-to-date and authoritative information. *Current Therapy* is designed to fill this need, and, generally speaking, it does well. In the past decade the annual revisions have made the book a familiar fixture in physicians' offices, staff rooms, and libraries so that it really needs no introduction to most physicians. Its long popularity and wide sale are adequate testimony to its usefulness.

This year the end papers are devoted to normal laboratory values. The general format remains the same with twelve consulting editors and approximately 300 contributors assuming responsibility for keeping the sixteen major sections of the book up to date. Adequate annual revisions would be impossible except in a multiple-author volume, but, as would be expected, the literary quality and scientific authoritativeness of the numerous articles is a bit uneven.

The articles are brief, providing the practitioner with a synopsis of the treatment of a multitude of conditions, but other sources will be necessary for the reader who needs a complete discussion of the details, the theory and the rationale behind various regimens. The book is well made, adequately indexed, and con-

tains several tables which will be welcomed by most physicians.—*J.D.R.*

The Plasma Proteins: Clinical Significance. By Paul G. Weil, M.D., Ph.D. Published by J. B. Lippincott Company, Philadelphia. 133 pages. Price $3.50.

Noting that this is a representative of the "Practitioner's Pocket Books" series, one might be led to believe that here at last was the book on blood proteins that he had been looking for—a small, moderately priced book giving a concise and authoritative résumé of the blood proteins. Unfortunately, such is not strictly the case. The author, as director of the Transfusion Service of the Royal Victoria Hospital and consultant in transfusion of the Queen Elizabeth and Royal Edward Laurentian Hospitals approaches the plasma proteins largely from the point of view of the internist who is interested in hematology and transfusions. This emphasis leads to very sketchy coverage of the more strictly biochemical and physiological aspects which are currently of increasing importance, not only to the research worker, but to the clinician who hopes to make proper clinical applications based on an understanding of the fundamentals.

The twenty-one chapters give a rather brief coverage of such topics as fibrinogen, globulins, liver disease, etc. The reader whose interest is aroused will wish for just a trifle more information here and there. Brevity may be the soul of wit, but it does not always lead to clear explanations; witness the author's explanation of the Coomb's test.

The book is of a "pocket" size. It is bound in hard covers, indexed and illustrated with a line drawing which presents a fair representation of the electrophoretic pattern of serum proteins, and another one which shows the relationship between the glycoproteins and the lipoproteins. There are, in addition, a few tables. The bibiliography contains a fair number of references, mostly to the clinical literature rather than to primary sources.—*J.D.R.*

Cancerophobia Claim Allowed

A new field in personal injury litigation has been thrown open as the result of a recent decision in the Court of Appeals of New York.

The court ruled that Mrs. Eleanor Ferrara was entitled to $15,000 damages for mental anguish as the result of developing severe cancerophobia.

The crux of the case was her contention that she became extremely fearful of developing cancer after suffering burns while being treated by doctors specializing in x-ray therapy.

The history of the case is as follows:

X-Ray Treatments: Mrs. Ferrara, who was suffering from bursitis in the right shoulder, received a series of x-ray treatments and subsequently developed a condition which was diagnosed as chronic radiodermatitis.

On Dec. 3, 1951, about two years after the treatments, Mrs. Ferrara was referred by her attorney to a dermatologist for examination. During the course of the examination, he advised the woman to have her shoulder checked every six months because the burns might become cancerous.

Mrs. Ferrara then sued the doctors specializing in x-ray therapy for malpractice, contending that the total number of roentgens (1400) applied was excessive.

The plaintiff introduced the testimony of a neuropsychiatrist to the effect that she was suffering from severe cancerophobia. The witness further testified that Mrs. Ferrara might have permanent symptoms of anxiety.

Decision Appealed: The jury rendered a verdict in favor of the plaintiff in the sum of $25,000 and in the sum of $1,000 to her husband for the loss of her services.

The decision was appealed to the Court of Appeals for the purpose of passing on the propriety of the award of $15,000 of the $25,000 to the plaintiff for mental anguish flowing from the cancerophobia.

During the course of the trial, the attorney for the plaintiff said:

"We are not making any claim that this person is going to sustain a cancer. We are going on a neurosis."

The court concluded:

"This case is somewhat novel . . . in that it appears to be the first case in which a recovery has been allowed against the original wrongdoer (x-ray specialists) for purely mental suffering arising from information the plaintiff received from a doctor to whom she went for treatment of the original injury. We have concluded, however, that under the circumstances of the case such recovery was justified."

Dissenting Opinion: There was a dissenting opinion by one of the judges who stated:

"The unfortunate result of the rule by this decision, albeit disclaimed, is that a doctor's mere statement as to a possibility is a stepping stone to an increased recovery should the patient simply claim to be concerned to suffer worry by reason thereof. . . .

"The decision of the majority introduces into the law a new field of damages for cultivation by plaintiffs and affording countless opportunities for fraudulent unverifiable claims." Ferrara v. Galluchio 152 N.E. 2d 249 (N. Y., 1958)—*A.M.A. News.*

The Kansas Medical Society—1959-1960

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Thyroidectomy

A Summary of the Indications for Operation

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Thyroidectomy is an important and valuable operation. Recent knowledge regarding use of supplemental iodine in low-iodine areas, use of anti-thyroid drugs and radioactive iodine, and successful medical management of Hashimoto's thyroiditis have tended to decrease the frequency with which a surgeon is called upon to perform thyroidectomy. Consequently many clinicians have been inclined to neglect surgery of the thyroid gland. For this reason it seems pertinent to review the indications for thyroidectomy.

According to McGovern,[5] removal of a goiter was first performed in the tenth century by Abdul of Albucasis in Baghdad. However, it took the pioneering work of Kocher in the latter part of the last century and the further refinements of Crile, Lahey, C. H. Mayo, and Hertzler in the early 1900's to make the operation a safe and practical one. At the present time thyroidectomy can be performed with an operative mortality approaching zero and with a minimum of serious sequelae.

Nodular Goiter

Nodular goiter is the most common condition requiring thyroidectomy. This is true because of the possibility of a carcinoma being present, because of the possibility of subsequent development of toxicity, because of pressure signs and symptoms, and for cosmetic reasons.

There is some disagreement as to the frequency that carcinoma of the thyroid is found in nodular goiters. Cole[2] reports 17 per cent of 192 non-toxic nodular goiters to be carcinomatous. Crile[4] and Cope[3] each note about 10 per cent of non-toxic nodular goiters to contain carcinomas. These figures are undoubtedly high. All three of these surgeons are asked to see relatively few of the nodular goiters in their areas. Accordingly, patients suspected of having carcinoma comprise a larger proportion of their experience. At the Mayo Clinic where the practice is to remove most thyroid nodules, 7.5 per cent of their series have been found to be cancerous.[1] In the group of asymptomatic nodular goiters in which there was no suspicion of carcinoma, 3.8 per cent of the goiters removed have been proved to be carcinomatous.[1] In an autopsy study at the same institution, Mortensen and his associates[6] examined thyroid glands removed in the course of 1,000 consecutive necropsies. They found 525 of these glands to contain gross nodules and of these, 28 were carcinomas, a percentage of 5.3 per cent. Thus a figure of 5 per cent seems reasonable as the frequency of carcinoma occurring with nodular goiter.

Thyroidectomy is a safe and valuable operation. Most nodular goiters should be removed electively. Large colloid goiters may be removed when they produce pressure on vital neck structures or are disfiguring. Persons in the younger age groups with exophthalmic goiter should probably have thyroidectomy as primary treatment for this disease. Adenomatous goiter with hyperthyroidism is best managed by thyroidectomy.

It is difficult to arrive at an accurate estimate of how frequently an adenomatous goiter becomes hyperfunctioning. Figures ranging from 25 per cent to 50 per cent are to be found in the current literature. These are probably high, yet most practicing physicians have encountered the elderly patient with auricular fibrilla-

tion and cardiac decompensation in the presence of a large adenomatous goiter often enough to be impressed with the gravity of the situation. Certainly toxicity develops often enough as a late event in the course of adenomatous goiter to make prevention of toxicity a firm reason for recommending surgery for nodular goiter.

Signs and symptoms of pressure in the neck by a large goiter are an obvious indication for surgical therapy. Since thyroidectomy is a safe operation it is reasonable to remove some goiters for cosmetic reasons alone.

Mention should be made regarding the management of Hashimoto's thyroiditis. This disease can often be diagnosed by clinical and laboratory techniques and managed medically. Confirmation of the diagnosis is possible by needle biopsy of the thyroid gland. However when nodules persist after an adequate period of medical therapy it is probably safest to proceed with thyroidectomy lest a thyroid cancer be overlooked. This consideration is of importance because of the apparent actual increase in the disease that is being observed.

Simple Colloid Goiter

The reasons for performing thyroidectomy in the presence of a simple colloid goiter are for relief of pressure phenomena or for improvement of appearance.

Exophthalmic Goiter

Successful use of antithyroid drugs and radioactive iodine in recent years has greatly diminished the need for thyroidectomy in the therapy of exophthalmic goiter. However, it should be pointed out that thyroidectomy does provide safe and effective treatment for this disease. It is preferable to long-term management with the anti-thyroid drugs since these drugs do not provide permanent remission. Radioactive iodine is a very effective agent in the management of Graves' disease. However, the possibility of carcinogenic effects cannot be overlooked. Sufficiently long follow-up after use of this agent is not available to provide the final answer. Significant increase in occurrence of the leukemias following use of radioactive iodine in the treatment of thyroid cancer (where dosage is much larger) has been noted. Ionizing radiation from other sources has been implicated as causative in thyroid cancer.[7] Perhaps it is prudent for the time being to continue the recommendation for thyroidectomy in the management of exophthalmic goiter in the younger age groups.

Adenomatous Goiter With Hyperthyroidism

Antithyroid drugs and radioactive iodine have not been satisfactory in the management of adenomatous goiter with hyperthyroidism. Patients suffering this disease should have medical management of their complications including digitalization if indicated. In addition, preparation with Lugol's solution for seven to ten days should be carried out. Then, thyroidectomy should be performed.

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Married Women Physicians Stay With Medicine

The common belief that it is a waste of highly specialized education for women to study medicine, when most of them abandon the profession to become housewives, is refuted by the results of a recent survey.

The study reveals that most women physicians practice medicine after finishing school, though some declare a brief hiatus in their careers to have children. Almost 30 per cent of women physicians decided against marriage, while approximately 3 per cent of their men colleagues are bachelors.

Most popular specialties for the women M.D.s are pediatrics, psychiatry, and neurology. Few women become surgeons. An estimated 5 per cent of the nation's 7,500 medical students are women.—*The Pennsylvania Medical Journal.*

Ophthalmia Neonatorum

A Comparison of Silver Nitrate and Bacitracin in Prophylaxis

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Bacitracin has less irritating effect than silver nitrate on eyes of newborn infants. After either type of treatment no pathogenic bacteria were found in the eyes for a five day follow-up period. Bacitracin is effective against a wider range of organisms than silver nitrate. It is recommended as a replacement for silver nitrate solution in prophylaxis of ophthalmia neonatorum.

Crede's method of preventing ophthalmia neonatorum was standard from 1881, until the advent and trial of new chemotherapeutic agents in 1944.[9] In 1935, Lehrfield[13, 14] pointed out some limitations of silver nitrate and in 1950 reported blindness from errors in dilution of silver nitrate. Eastman[7] reported litigation from injury to the eyes following use of concentrated silver nitrate, and also deteriorated solutions in cracked ampules. Pearson[18] has recently reported failure of silver nitrate to prevent gonococcal ophthalmia neonatorum. The less serious side effects of silver nitrate, edema and discharge of the eyes, have concerned attending physicians and mothers. Silver nitrate has no value in the treatment of ophthalmia neonatorum. The following study was permitted by the Kansas State Board of Health.

Materials and Methods

The study included 1,652 infants born at Wesley Hospital, Wichita, Kansas, from August 1, 1956 to January 31, 1957. During the months of August, October, and December of 1956, bacitracin ophthalmic ointment with phenacaine containing 10 mg. of bacitracin per gram of vanishing cream base was used on 881 infants. The ointment was in Báciguent ESCAP®* in the form of individual dosages. One half dose was placed in the palpebral fissure of each eye. None of the excess ointment was wiped from the eye. In the alternate months of September, November, and January, silver nitrate, one per cent (with added buffer of a very small amount of sodium acetate) in capsules,** was used on 771 infants. One or two drops were instilled in the palpebral fissure near the inner canthus, and any excess washed away with drops of sterile normal saline solution.

Newborn infants were under daily observation during their mothers' hospital stay of usually five days. The nursing supervisor reported infants with eye swelling and discharge. The presence of these symptoms or pus was considered conjunctivitis. The observations on redness of mucous membranes were not accurate enough for evaluation. Cultures of the eyes were taken in those infants who had been treated with bacitracin and who developed any reaction of the eyes. Purulent discharge had been so frequent with the silver nitrate regime in the past, that only those which persisted after three days or were acutely inflamed were cultured.

Tabulation of results are recorded in Table I. Swelling of the eyelids in the infants treated with bacitracin was always accompanied by discharge, but none developed after the second day. Two thirds of the eyelids of infants treated with silver nitrate were swollen only. No edema or discharge was present at dismissal of the bacitracin treated babies, but swelling was present in many of those treated with silver nitrate. The cultures from the eyes taken during the five day period showed no pathogenic bacteria. Culture of one premature taken two weeks after birth showed pneumococci.

TABLE 1

TABULATION OF RESULTS OF STUDY BETWEEN BACITRACIN AND SILVER NITRATE

Prophylaxis	*Date*	*Live Births*	*Conjunctivitis*	*%*
	August	281	3	1.0
Bacitracin	September	300	6	2.0
	October	300	10	3.3
		881	19	2.1
	September	269	44	16.3
Silver Nitrate	November	262	60	22.9
	January	240	75	31.2
		771	179	23.2
Total		1652	198	

From the Department of Pediatrics, Wesley Hospital, Wichita, Kansas and the Wichita Foundation for Medical Research

* The bacitracin *ESCAP Baciguent* used in this study was supplied by the Medical Department Upjohn Co., Kalamazoo, Michigan.

** Parke, Davis, and Company, Detroit, Michigan.

Discussion

Bacitracin has bactericidal effect, little or no incidence of systemic reaction, and stability at room temperature.[11] It is one of the least sensitizing of all the antibiotics, and one to which resistance is unlikely to develop under clinical use.

Finland[15] has shown it to have efficacy against gonococci, the highest concentration required for his strains was 25 mcgm/ml. The preparation used in this study contained 10 mg/Gm. which exceeded this endpoint. In addition, it has bactericidal effects against staphylococci and streptococci which have been shown to be more frequent than N. gonorrhoeae both before and after treatment with silver nitrate.[1] It does appear to cause a local sensation and for this reason a local anesthetic is usually incorporated in bacitracin ophthalmic ointment. Previous studies have reported effective prophylaxis of ophthalmia neonatorum from the use of silver nitrate,[5] penicillin,[19] sodium sulfacetamide,[3] sodium sulfacetamide and sulfathiazole,[17] chlortetracycline,[4] oxytetracycline,[16] oxytetracycline and polymyxin,[23] erythromycin,[21] bacitracin,[19] and lavage with sterile water.[12]

In January, 1957, the Health Department of the City of New York removed the requirement for any specific prophylaxis of ophthalmia neonatorum.[20] This change was brought about because of the improved level of sanitation, improved sanitary codes, and the fact that the disease was readily diagnosed and treated effectively with systemic antibiotics. There is a question whether Kansas has arrived at such a stage of medical maturity. Until such circumstances exist, bacitracin offers physicians an effective prophylactic agent for eyes of newborn infants.

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TABLE II

PREPARATIONS PRESENTLY USED FOR PROPHYLAXIS OF OPHTHALMIA NEONATORUM IN EYES OF NEWBORNS*

Silver Nitrate Alone	19 States
Silver Nitrate or Agents for Research approved by State Board of Health	7 States‡
Silver Nitrate or Silver Proteinates	5 States
Silver Nitrate or Penicillin	5 States
Silver Nitrate or an Antibiotic approved by State Board of Health	5 States
Silver Nitrate or Physician's Choice of Drugs	3 States
Silver Nitrate or Equally Effective Agent	2 States
Penicillin Alone	1 State
"Germicide of Proven Efficacy"	1 State

* A report prepared by Mrs. Laura Halse of the Children's Bureau.[23]

‡ And Washington, D. C.

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Tuberculosis in Kansas

Part I—The Changing Picture of Tuberculous Infection in Kansas

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The mortality rate can no longer be regarded as an adequate measure of the extent of the tuberculosis problem in Kansas, or in the United States. In 1900 the death rate from tuberculosis in Kansas was 194 per 100,000 population. Fifty-six years later this rate had dropped to 8.4.

The decline in morbidity, however, has not paralleled the mortality rates. Morbidity rates are still five times those of mortality. Tuberculosis formerly killed one-half of its victims, today four out of five cases become arrested with proper treatment.

This decrease in mortality is undoubtedly due to the advance in methods of treatment, both medical and surgical. No longer are we limited to Rest-Food-Fresh Air as the principal treatment for the patient with pulmonary tuberculosis. Earlier diagnosis also deserves partial credit for the lower mortality rate. Minimal or moderately advanced cases have a much better chance of becoming arrested than do those which are not discovered until the disease is far advanced.

An analysis of the Kansas vital statistics reveals that of the 639 cases of tuberculosis reported in 1957, 62 per cent were in the minimal or moderately advanced stages, while only 25 per cent were far advanced at the time of diagnosis. Of these 639 cases, 132 were uncovered by the mobile x-ray units. Further clinical evaluation and study by the physicians of Kansas led to a proper diagnosis of active tuberculosis.

Again in the year 1958, when 474 new cases were discovered, 92 were first suspected by small photofluorographic x-rays. Of these, 18 were already far advanced, while 70 were equally divided between moderately advanced and minimal when diagnosed.

The change in ages of newly discovered cases of pulmonary tuberculosis is also of interest. Formerly many of our teen-agers and young adults were found to be infected with tuberculosis. In recent years the age group of newly diagnosed patients has shifted to the range of 30 to 50 years.

In 1957, of the 132 new cases reported as a result of photofluorographic surveys, 11 were under 30 years of age, 42 between 30 and 50, and 79 were over 50. The 1958 statistics were somewhat similar: nine were under 30, 25 between 30 and 50, and 58 over 50.

During 1958 the mobile x-ray units first uncovered suspicious lesions in 92 of the 474 cases reported. None of these were under 20 years of age. Nine individuals were between 20 and 30 years, ten between 30 and 40 years, 15 between 40 and 50 years, another 15 between 50 and 60 years, and 24 were between 60 and 70 years. Eighteen individuals were over 70 years of age when first suspected of being tuberculous.

Perhaps this trend may explain in part the fewer cases of tuberculosis being found in the teen-age and young adult population of today. Sixty per cent of the new 1958 cases of tuberculosis were over 50 years of age and their children, probably, by that time were adults. Our younger children are now less exposed to contagious tuberculous individuals, than formerly.

Based on the above data, it is evident that we must direct the major part of our case-finding activities to the older age groups. Furthermore we must limit the number of contacts of these new active cases when first diagnosed.

In 1957 the Kansas Legislature passed a bill which enables the Kansas physicians—through authority of their local county health officers—to protect the public against active tuberculous cases. Prior to the passage of this bill active cases had been the source of too many new cases.

The public has been made aware of the seriousness of tuberculosis and the tragic results that ensue if the communicable case is not controlled. Furthermore, it expects the medical profession to continue to protect all citizens. Public health physicians and the family doctor of today form a team that will succeed in further reducing the prevalence of tuberculosis in our communities.

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The man or woman who concentrates on "things" can hardly be trusted to use those "things" for the essential good of mankind. Only those who have guided the development of their spirit as well as their mind are really . . . qualified to use wisely the things that man's reason has enabled him to fashion out of nature's raw materials.—*E. S. Fields*

Dr. Mott's article is the first of a series of three by the Commission on Control of Tuberculosis. The other two articles will run consecutively in the next issues of the JOURNAL.

Intermenstrual Pain

Cervical Mucus Changes as a Diagnostic Aid

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The differentiation of ovulation pain (mittelschmerz) from other acute abdominal conditions requires the complete clinical appraisal of the patient, but to be able to determine that ovulation is actually coincident with the abdominal pain is quite helpful in making a correct diagnosis. A case will be presented to illustrate the use of Tes-Tape® to determine that ovulation was, in fact, occurring on the same day that pain developed thereby revealing its value as a test in differentiating ovulation pain from acute appendicitis.

Periodic lower abdominal pain in the interval between menstrual periods was described by Pouchet in 1847, by Priestley in 1872, and by Fehling in 1881. Since then, it has been the subject of surprisingly few discussions and case reports.[1]

The cause of this periodic intermenstrual pain is not specifically known, but it is certain that it is associated with ovulation. This is supported by the facts that it occurs only after menarche and before menopause, and that it ceases during pregnancy. The time of its occurrence coincides well with methods of estimating the time of ovulation, such as basal temperature determinations. Probably the most accepted explanation for the pain is a peritoneal reaction to the fluid which is released upon perforation of the tunica albuginea of the ovary at the time of ovulation.

The intermenstrual pain of ovulation is usually mild, described as cramp-like, intermittent, and localized to the pelvis from which it tends to radiate to the back or legs. It is usually of short duration and may be bilateral or unilateral. A history is usually obtained of a similar episode occurring from month to month at about the same time. Occasionally an especially severe attack may present an acute condition which must be differentiated from acute appendicitis or salpingitis, and rupture of a follicle or corpus luteum with intra-abdominal hemorrhage. In uncomplicated ovulation pain the white count may be elevated and the possibility of acute appendicitis difficult to rule out. In the case of ovulation pain there is a tendency for the white count to fall after a few hours and this can be used as an aid in the diagnosis. However, in this situation the physician can feel more secure with the diagnosis of ovulation pain, and thereby possibly avoid unnecessary surgical intervention, if he can demonstrate that this is, in fact, the day of ovulation. McSweeney and Fallon[2] reported on 358 patients with pain following ovulation who were admitted to Boston City Hospital between 1939 and 1944. They stated that 165 patients were treated surgically, but in 87 of these operations could have been avoided.

The author recently saw a patient with acute abdominal pain in whom the diagnosis of ovulation pain was aided by a simple test for determining ovulation time. A test for ovulation utilizing Tes-Tape has been described recently by Birnberg and associates[3] and further elucidated by Doyle.[4] The test is based on the observation that significant chemical alterations in cervical secretions take place at the time of ovulation. Apparently there is a hydrolytic splitting of glycogen in the cervical mucus and glucose is present as a result of this hydrolysis. The presence of glucose is determined by the use of Tes-Tape. It has been noted that when Tes-Tape is placed into contact with the cervical mucus for three to five minutes at the time of ovulation the Tes-Tape progressively becomes bright leaf green to deep green. The color change becomes maximum in about five minutes. That this change occurs specifically on the day of ovulation has been well demonstrated both by correlating it with surgical examination of the ovary to observe the rupture of the follicle, and by the high incidence of pregnancies resulting from artificial insemination performed on the day of deepest Tes-Tape color change.[3, 4]

The determination of the day of ovulation can be of material help in the differentation of pain due to ovulation and that due to other intra-abdominal conditions requiring operative attack. A simple test is described and its value in a specific case is reported.

Case Report

The patient is a 19-year-old single, white, female college student who had been well until September 15, when she noted loss of appetite and some nausea after the noon meal. At 10:30 a.m. the next day while in class she noted the sudden onset of pain located in the right back and lower right abdomen which made her squirm in an attempt to obtain relief. She returned home at noon, ate very little, and found her temperature to be normal. By 2:00 p.m. she

had developed more severe pain in the lower right abdomen and had a temperature of 101 degrees. Her pain was described as cramp-like. She had four bowel movements which were normal. There were no urinary symptoms.

The patient began menstruating at age 12 and had periods every 30 to 35 days lasting about five days. Her last menstrual period was normal and began on August 30, so the present pain developed on the 17th day of the cycle.

The past history revealed that she did not have monthly, periodic intermenstrual pain, but that she had an acute pain in the right lower abdomen ten months ago which occurred mid-way between menstrual periods and was diagnosed by another physician as ovulation pain.

Examination revealed normal findings except for those relating to the lower abdomen and pelvis. The abdomen was flat and there were no organs or masses palpable. Bowel sounds were present and normal. There was moderate guarding by the musculature in the lower right abdomen with tenderness which was localized about two centimeters inferior to McBurney's point. There was no referred pain and no rebound tenderness. Recto-vaginal examination revealed tenderness in the right pelvis, but no mass was palpable. Her temperature was 100 degrees.

Laboratory Studies

Urine: 1.023, pH 5.0, albumin and sugar were negative. Microscopic: 1-3 WBC's per high-power field.

Blood Count:	Hemoglobin	RBC	WBC	Stabs	Segs	Lymphs	Monos
9-16-58	85%	4.33	7,800	6	76	13	5
9-17-58			3,350	7	56	30	7

Cervical Mucus: On September 16, a smear of cervical mucus revealed ferning. A piece of Tes-Tape such as used in testing urine for sugar was applied to the cervix for a duration of four minutes. Within five minutes the tape developed a bright green color corresponding to the 0.25% color on the Tes-Tape color chart. On September 17, the cervical mucus again showed marked ferning on the slide, but the Tes-Tape developed a more faint green color which required about eight minutes to appear.

The patient was re-evaluated clinically on September 17, and found to have only minimal tenderness in the right lower abdomen and no muscle guarding. She had a temperature of 99.0, was eating well, felt fine, and had returned to her college classes.

Discussion

This patient presented an acute abdominal pain in which the diagnosis of acute appendicitis was discarded in favor of ovulation pain. Initially, the author was most concerned about a diagnosis of acute appendicitis because of the tenderness and guarding in the right lower abdomen together with the fever, nausea, and slight shift to the left revealed in the differential white count. Dr. K. L. Lohmeyer was asked to see the patient as surgical consultant. His first diagnosis was ovulation pain and he also made the observation of ferning on the smear of cervical mucus. Being able to obtain good evidence that ovulation had very recently occurred by the use of the Tes-Tape reaction allowed us to feel more secure in the diagnosis of intermenstrual pain resulting from ovulation. The fern test cannot have such specific significance without having a series of smears, and even then would probably not have the reliability of the Tes-Tape reaction.

The fact that the Tes-Tape reaction was fainter on the 17th is in accordance with the observations of Birnberg and associates, who found that the color change became of maximal intensity on the day of ovulation and then faded and disappeared within two to three days.

Even though a diagnosis of intermenstrual ovulation pain is established, should the symptoms fail to subside after several hours of observation and there is evidence of increasing accumulation of blood in the pelvis, laparotomy is indicated.[2]

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3. Birnberg, C. H.; Kurzrok, R., and Laufer, A.: Simple Test for Determining Ovulation Time, J.A.M.A. 166:1174-1175 (March 8) 1958.
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The American Consumer Dollar

People in the United States spend 14 cents out of every dollar on transport and communications, more than anyone else in the world.

The annual UN statistical yearbook gives this breakdown of the American consumer dollar in 1957:

Food, 24 cents; transport and communications, 14; rent and water, 13; household upkeep and furnishings, 11; clothing, 9; medical and dental, 7; tobacco and drinks, 5; fuel and light, 4; miscellaneous, 13.

Clinicopathological Conference

Nervousness, Headache, Hemiparesis and Stupor

Case Presentation

A 58-year-old white man who had had weakness of the right side and progressive stupor for three weeks was admitted to KUMC for the first time on November 26, 1957, and died three days later.

He had been unusually nervous and irritable for the preceding two months. He had otherwise apparently been in fairly good health until November 5, at which time he awoke in the morning with a severe, bursting headache which lasted for three days, and which was accompanied by a slight fever and cough. He was treated by his local physician with penicillin and some white tablets. During the next five days he developed irritability, ataxia, drowsiness, and poor attention and inappropriate answers. Five days after the onset of these symptoms he noted weakness of his right arm. He was admitted to a local hospital on November 10. During his hospitalization his arm improved, but his mental confusion persisted, and he continued to show bizarre behavior. His speech was slurred and indistinct, and he had difficulty in expressing his thoughts. He did not complain of headache, and he was afebrile throughout his hospitalization.

He was dismissed on November 20. On the following day he was incontinent of urine and feces. He was treated by a chiropractor, but on the second day of treatment he showed no recognition of him. He gradually became more stuporous during the next two days, and he lapsed into a comatose state from which he could be aroused only by painful stimuli.

The patient was a well developed, obese, white man. His blood pressure was 130/70; his pulse rate was 60 and regular; respiration was 20 per minute with periodic rhythm; temperature, 99 degrees rectally. He occasionally opened his eyes and looked about, but he showed no awareness of his surroundings, and he did not respond to vocal stimuli. He moved only his left leg and left arm in response to painful stimuli. His head and neck were normal with the exception of nuchal rigidity. There was no facial asymmetry. The pupils were unequal in diameter and fixed, the right being larger than the left. There was slight nasal blurring of the right disc. There were no hemorrhages, exudates or papilledema. The ears, nose and throat were normal. The chest was clear to auscultation and percussion. The heart rate was 62 per minute and regular. A grade I to II systolic murmur was heard in the aortic area and along the left sternal border. There were no thrills. The abdomen was obese, but no organs or masses were felt. The genitalia and rectum were normal. The deep tendon reflexes were hyperactive, and the superficial reflexes were absent on the right side. There was a Babinski sign and hemiparesis on the right.

The specific gravity of the urine was 1.025. There was an acid reaction, occasional epithelial cells, but no albumin or sugar. The admission white count was 11,250 with 76 per cent polymorphonuclears (61 per cent filamented, 15 per cent non-filamented), 19 per cent lymphocytes, 1 per cent eosinophil, 4 per cent monocytes. The hematocrit was 50 per cent; the hemoglobin was 95 per cent, 14.3 gm. The white count on November 27 was 21,000 white blood cells per cubic millimeter. The blood urea nitrogen was 14.8 mg. per cent, and the glucose was 118 mg. per cent.

On admission the spinal tap opening pressure was 195 mm. The cerebrospinal fluid was crystal-clear; the sugar content was 36 mg. per cent; protein, 116 mg. per cent. There were 30 to 40 red blood cells, 100 white blood cells, and 50 per cent polymorphonuclears.

On November 27 he was still semi-comatose, and responded only to painful stimuli by withdrawing his left leg. The pupils remained unequal, and there was nuchal rigidity. His blood pressure was 110/60, and his temperature was 101 to 103 degrees rectally. The spinal fluid was clear and was under a pressure of 240 mm. The sugar content was 44 mg. per cent; protein, 80 mg. per cent; simultaneous blood sugar, 130 mg. per cent. On November 28 his pulse rate was 50 per minute; respiratory rate, 22 and periodic; temperature, 103 degrees. His blood pressure was slightly lower. His urinary output on November 26 was 1750 ml., and on November 27 it was 1250 ml. During his hospitalization he received about 6000 ml. of intravenous fluids.

On the third hospital day he was completely unresponsive. His pulse rate was 72 per minute; his blood pressure was 170/68; and his temperature was 103 degrees rectally. On November 29 he no longer responded even to painful stimuli, and periodic respiration was more evident with long periods of apnea. He died quietly at 11:15 a.m.

Dr. Mahlon Delp (moderator): Are there any questions?

Edited by Jesse D. Rising, M.D., and Mahlon Delp, M.D. from recordings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology and pathology of the University of Kansas Medical Center, as well as by the third and fourth year classes of students.

Thomas Hunt (fourth year medical student):* What was the differential cell count on the second spinal tap?

Dr. Frank C. Brosius (resident in medicine): The second spinal differential count was 90 per cent lymphocytes.

Richard Hadley (student): Were any skin tests done?

Dr. Brosius: No.

Arthur Halliday (student): Did he have a previous history of seizures?

Dr. Brosius: No, he did not.

Mr. Halliday: Did he ever have hypertension?

Dr. Brosius: No.

Duane McCarter (student): Was there a history of trauma?

Dr. Brosius: No.

John Hardy (student): Did he have papilledema at any time during his hospitalization?

Dr. Brosius: No.

Muryl Laman (student): What was his occupation?

Dr. Brosius: He did clerical work.

Mr. McCarter: What was his fever course?

Dr. Delp: On admission his temperature was 99 degrees. His next two readings were normal, but he had fever throughout the rest of his hospitalization.

Mr. Hunt: Did he have a history of headaches before the onset of his last episode?

Dr. Brosius: He apparently had not been troubled with headaches before that time.

Mr. Halliday: Had he been exposed to any toxins?

Dr. Brosius: Not that we were able to determine.

Alex McBurney (student): Were smears or cultures done on the spinal fluid tap?

Dr. Brosius: An India ink smear was negative.

Dr. Hardy: Did he have a history of alcoholism?

Dr. Brosius: No, he did not.

Mr. Laman: Did he have a cough at any time during his hospitalization?

Dr. Brosius: No, he did not.

Mr. Laman: Was a sputum culture done?

Dr. Brosius: There were no sputum cultures.

Mr. Hardy: Did subsequent urinalyses show any hematuria?

Dr. Brosius: No. There was microscopic hematuria on the first urinalysis, but none on subsequent ones.

Mr. Hadley: Was his chest clear?

Dr. Brosius: His chest remained fairly clear throughout his hospitalization, but there were some rales in the lower and dependent area which were believed to be congestion.

Mr. Laman: Did he have cardiac arrhythmia while he was in the hospital?

Dr. Brosius: No.

Mr. McBurney: Had he had a recent upper respiratory infection?

Dr. Brosius: No, he had apparently been well until the onset of his headaches.

Dr. Delp: If there are no more questions, we will now have the x-rays.

Mr. McBurney: The x-rays of the skull, taken on November 27, show no bony abnormalities. The pineal gland is calcified in the midline, and the sella turcica is normal and not eroded. I interpret this as a normal skull film.

A chest film on November 27 shows a slight deviation of the vertebrae in the cervical region. The trachea is deviated to the right, and the diaphragm is elevated on the right. This is probably due to his obesity and to the fact that he was supine at the time the x-ray was taken. The costophrenic angles are clear. There is a diffuse opaqueness throughout the chest with focal opacities in the left lung field. The mediastinum is diffusely enlarged.

Dr. Delp: Thank you. May we have your comments, Dr. Tice?

Dr. Galen M. Tice (radiologist): These films were taken while the patient was semi-comatose. The mediastinum is light, and the diaphragms are high mainly because he was supine. The film was probably taken during expiration, but there could have been minor congestive changes.

Dr. Delp: Thank you. Mr. Laman, will you please begin the discussion?

Differential Diagnosis

Mr. Laman: A 58-year-old, obese, white man entered this hospital on November 26 and died on November 29. He had apparently been in fairly good health until two months before admission when his wife noticed his unusual irritability and nervousness. On November 5 he had symptoms of an intracranial catastrophe, resulting in right hemiparesis, transient incontinence, signs of meningeal irritability, changes of personality and mental stupor which progressed to death in three weeks. I shall base my differential diagnosis on rapidly progressive coma and nuchal rigidity in a previously well man.

I shall first rule out degenerative diseases such as multiple sclerosis, Schilder's disease, and acute disseminated encephalomyelitis because of the difference in age incidence and the chronicity of the first two diseases, and the acute onset and rapid course of the third disease.

Toxic diseases such as diabetes, uremia, hepatic disease, and lead, arsenic or bromide poisoning can be dismissed because of the history and the clinical findings.

Acute extradural hemorrhage can be excluded as a possible diagnosis because there was no history of recent trauma or appropriate clinical findings. Chronic

* Although a medical student at the time of this conference in March, 1958, he, like the others referred to as students, received his M.D. degree in June, 1958.

subdural hematoma can not definitely be ruled out because there were no characteristic clinical findings to differentiate this from a space occupying lesion within the cranial vault. The course of this disease may be similar to that of our patient's, but I believe that this entity is unlikely.

There were no typical clinical findings for a diagnosis of thrombosis of any of the venous sinuses. There was no history of hypertension or evidence of arteriosclerosis, and there was no bloody or xanthochromic spinal fluid for a diagnosis of subarachnoid hemorrhage. Hypertensive encephalopathy can be ruled out because of the history and lack of transient hypertensive episodes. The lack of clinical findings make the diagnosis of cerebral arteriosclerotic degeneration unlikely.

Three types of cerebrovascular disease account for the greatest number of focal and generalized symptoms of the brain in this particular age group. The first, cerebral embolism, can be ruled out because there was no source of an embolism, and there were no emboli throughout the rest of the body. The second, cerebral hemorrhage, is an unlikely diagnosis because the patient was not hypertensive, and there was no bloody or xanthochromic spinal fluid. Cerebral softening, either primary or secondary to thrombosis, cannot be ruled out, but it is an unlikely diagnosis because there was no typical progress of symptoms, no increased pulse or respiratory rate, and no arteriosclerosis in the fundi.

A diagnosis of brain tumor can not definitely be excluded here despite the absence of a definite increase of cerebrospinal fluid pressure and a marked increase in protein. Seizures representing increased intracranial pressure are common in tumors of the central nervous system. A rapidly growing glioblastoma could account for these clinical signs or symptoms, but there was no history of seizures and no increased intracranial pressure.

Bacterial infections can be dismissed because of the lack of infection elsewhere, the lack of spinal fluid findings and their more fulminating febrile course. Tuberculous meningitis is a possibility, but there were no characteristic spinal fluid findings and no primary focus. About 90 per cent of these infections occur before the age of ten.

Luetic infection is unlikely because there was no history of exposure and no serologic evidence. Acute aseptic meningitides, such as lymphocytic chorio-meningitis, mumps, coxsackie and herpes zoster can be dismissed because of the different clinical picture, and, in the case of herpes zoster, the lack of pain. The viral encephalitides can be ruled out because he had no constant severe headache and no acute unremitting pain or generalized peripheral symptoms. Skin lesions usually occur elsewhere in the body in fungal infections such as histoplasmosis, mucormycosis and blastomycosis which involve the central nervous system, but because these symptoms are absent I shall rule out these diseases. This does not, however, rule out lung fungal disease or cryptococcosis, the etiological agent of which is *Cryptococcus neoformans*. The portal of entry of this disease is unknown, but it is believed to be pulmonary. There are two forms of this particular disease, one involves the central nervous system and the other is a focal pulmonary form. Subacute infection, cough and low fever are the initial symptoms of the pulmonary form, but I shall rule it out because of the history and the x-ray findings.

Cryptococcosis involving the central nervous system may have its onset with symptoms of a subacute pulmonary infection, but it is usually secondary to the asymptomatic pulmonary form. The symptoms appear gradually with intermittent frontal headaches, but the onset may be sudden and often occurs with an excruciating headache. There is vertigo and nuchal rigidity associated with progressive mental changes, apathy, irritability and deterioration. Physical signs include ataxia and hemiplegia, and there may be focal or generalized signs. The disease is progressive, although there may be a short remission. The majority of these patients die within four months. A diagnosis is made by finding the particular organism in the cerebrospinal fluid in an India ink preparation. This organism is often missed, however, because of its similarity to lymphocytes. Cerebrospinal fluid proteins may be moderately elevated or in the range of normal. The sugar is usually decreased in the range of 10 to 30 mg. per cent.

In summary, I believe our patient had a cryptococcosis (torulosis) which had its onset early in the fall and was first noticed as increased irritability and nervousness which progressed, and ultimately resulted in respiratory failure and death. My second diagnosis would be brain abscess in spite of the fact that I do not know the source. It is possible that there may have been a smoldering infection some place.

Clinical Discussion

Dr. Delp: What is your diagnosis, Mr. Hardy?

Mr. Hardy: Torulosis.

Dr. Delp: Mr. McCarter?

Mr. McCarter: Torulosis.

Dr. Delp: Mr. Halliday?

Mr. Halliday: Meningeal carcinomatosis.

Dr. Delp: Will you explain that, please?

Mr. Halliday: The primary lesion is usually seen in the kidneys, gastrointestinal tract, or in the breasts of women. Since we know nothing about our patient's gastrointestinal tract or kidneys, we do not have a source. Meningeal carcinomatosis could present the same clinical picture with nuchal rigidity, focal signs and hemiparesis, and it could be in the left frontal lobe.

Dr. Delp: Mr. McCarter?

Mr. McCarter: My diagnosis is cerebral thrombosis with encephalomalacia. The terminal event could have been hemorrhage into the necrotic area.

Dr. Delp: Mr. Hadley?

Mr. Hadley: Glioblastoma multiforme.

Dr. Delp: Will you discuss that a little more fully, please?

Mr. Hadley: There are 46 per cent gliomas in tumors in general, and the glioblastoma must be considered because 50 per cent of the gliomas have a rapidly progressive course. Our patient had neurological signs suggesting the frontal lobe, and a history of speech difficulty which could have been the extension of the tumor in the Brodmann's area. I believe that this could explain the spinal fluid findings and the rapid course of his disease.

Dr. Delp: What is your diagnosis, Mr. McBurney?

Mr. McBurney: Chronic subdural hematoma. He could have had a slight injury with a subsequent development of a hematoma which may take weeks or months to develop. For several months he showed signs of irritability which progressed to hemiplegia and aphasia. Papilledema is not always necessary for this diagnosis, and the intracranial pressure is also variable. The spinal fluid ordinarily would be xanthochromic, but this could disappear in two or three weeks.

Dr. Delp: Dr. Manning?

Dr. Robert Manning (resident in medicine): I believe that he had an abscess, but I can not explain the source of infection.

Dr. Delp: Mr. Hardy, what is your diagnosis?

Mr. Hardy: Chronic subdural hematoma.

Dr. Delp: Mr. Laman has brought out the possibility of aseptic meningitis. If this should be the dominating picture, what other items must be considered in the differential, Mr. Hardy?

Mr. Hardy: Coxsackie or lymphocytic virus.

Dr. Delp: If this is a sterile meningitis and nothing can be found, what else should be considered, Mr. Halliday?

Mr. Halliday: The spinal fluid would probably not show anything.

Dr. Delp: What other entity presents a sterile meningitis, Mr. McCarter?

Mr. McCarter: Infectious mononucleosis.

Dr. Delp: Mr. Hardy, have you ever seen a patient given intrathecal serum or intrathecal penicillin?

Mr. Hardy: No.

Dr. Delp: What do you believe it might do to the patient, Mr. Halliday?

Mr. Halliday: The meninges would become irritated.

Dr. Delp: Mr. Hardy, do you believe that the patient had Cheyne-Stokes respiration?

Mr. Hardy: Yes, I do.

Dr. Delp: Mr. McCarter?

Mr. McCarter: Yes, I believe he did.

Dr. Delp: Dr. Steegmann, may we have your differential diagnosis when you first saw the patient?

Dr. Theodore Steegmann (neurologist): On admission it was apparent that he had meningeal irritation which was indicated by the clinical signs and by the initial spinal fluid examination. Subarachnoid hemorrhage was not seriously considered because his course had become progressively worse and would probably have been associated with active bleeding in the subarachnoid space if it had continued and, of course, the spinal fluid would have been bloody. I do not believe there was anything in the spinal fluid changes that would have been incompatible with brain abscess, but the sugar level in the spinal fluid was low. Therefore, two types of meningitis were considered, tuberculous meningitis and cryptococcus meningitis or torulosis. His pulse was slow, and there was no corresponding rise in blood pressure. Yet there was enough change in the spinal fluid pressure to indicate a condition that was causing increased intracranial pressure. He was started on therapy for one of the chronic forms of meningitis because there was no evidence from laboratory studies or cultures. We believed that if his condition could be changed somewhat a more complete study could be done.

Carcinomatosis of the meninges was considered because this disease produces changes in the cell count such as we have seen here. As has already been noted, there is no primary source that could be determined by inadequate studies under unfavorable conditions. Multiple metastases to the brain obviously could produce a condition of stupor, but this was believed unlikely to produce this type of cell changes in the spinal fluid. Toxic agents were excluded because of the lack of history. I did not believe that there were any symptoms of a chronic subdural hematoma because I would not expect to find these changes in the spinal fluid, especially the reduced sugar content. Some patients have been seen who have meningeal signs and symptoms with deep-seated and rapidly growing tumors, especially the highly infiltrative type such as glioblastomas. This diagnosis was also considered, but the patient died before anyone really knew what was wrong with him.

Dr. Delp: Thank you, Dr. Steegmann. May we have your report now, please, Dr. Hieger?

Pathological Report

Dr. Leroy R. Hieger (pathologist): In addition to the central nervous system lesions in this case there were a number of other lesions which, while interesting, were probably not related to the cause of death. These included five small tumors of the ileum, three papillomatous structures in the gall bladder, tumor-like nodules in the liver, proliferative lesions in the

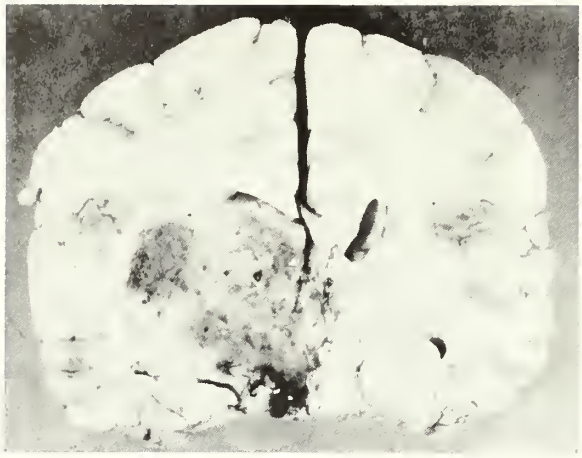

Figure 1. Coronal section of the brain demonstrating the tumor mass in the basilar portion of the left cerebral hemisphere (anterior below the surface of the page).

testes, and multiple perforations along the greater curvature of the stomach with 100 ml. of gastric contents in the lesser omental cavity. Since there was no evidence of inflammation within the abdomen either grossly or microscopically, the perforations were interpreted as agonal phenomena.

The brain weighed 1295 grams, and grossly it was symmetrical and was encased in translucent, normal-appearing meninges. Multiple cultures taken from the meninges and the brain for bacteria and fungi were sterile; blood cultures were also sterile.

The brain was sectioned in a fresh state in order to define the primary diagnosis. The second coronal section through the brain, about 1 cm. posterior to the mamillary body, revealed the primary lesion (Figure 1). In the basilar portion of the left cerebral hemisphere there was a large, fairly well demarcated, soft

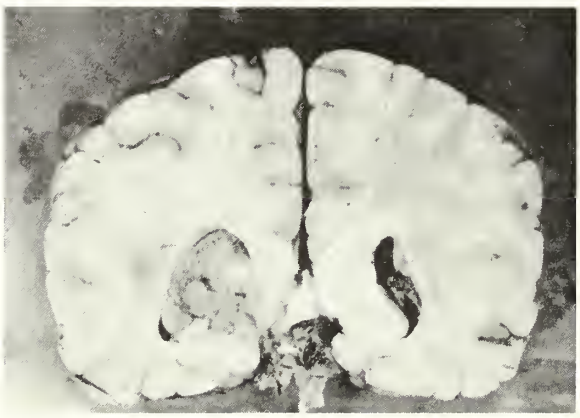

Figure 2. Coronal section of the brain demonstrating the tumor extending into the posterior horn of the left lateral ventricle (anterior below the surface of the page).

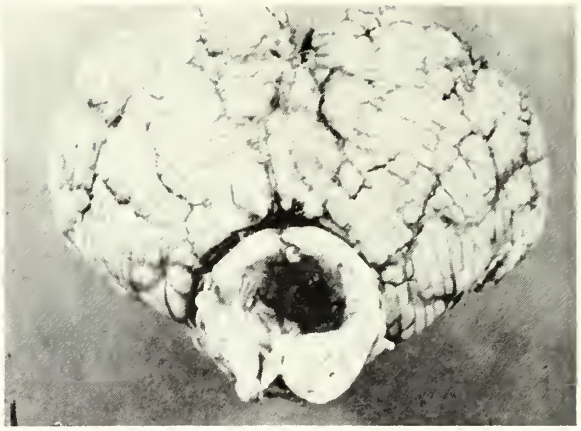

Figure 3. Horizontal section of the upper mesencephalon. Superior surface of the cerebellum is evident.

and mushy, grayish-yellow tumor mass which compressed the lateral ventricle and pushed the midline structures slightly to the right. The tumor extended superiorly into the motor cortex of the opposite cerebral hemisphere; caudally, as far as the pons; laterally, to the insular cortex; medially, as seen in figure 1; and anteriorly, as far as the anterior commissure. Posteriorly, it extended to a point about 1 cm. beyond the

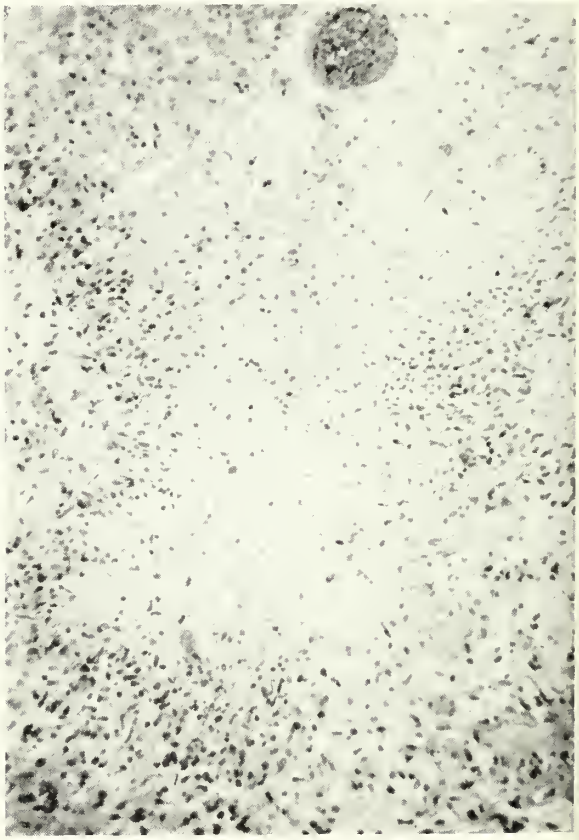

Figure 4. A typical area of necrosis within the tumor with pallisading of the tumor cells about it.

splenium of the corpus callosum and was seen extending into the posterior horn of the left lateral ventricle (Figure 2). Microscopically there was extension of the tumor through the wall of the ventricle medially and laterally.

A horizontal section through the upper mesencephalon revealed that the aqueduct was filled with a large amount of clotted blood from a focal hemorrhage in the area (Figure 3). Grossly there was considerable softening of the area.

The gross features were characteristic of glioblastoma multiforme, and this was borne out microscopically. There were large areas of necrosis with pallisading of the tumor cells about areas of necrosis (Figure 4). Blood vessels were increased in number and size and showed narrowing of their lumen due to adventitial and endothelial cell proliferation (Figure 5). Most of the tumor cells were large and had a pleomorphic pattern with only a few recognizable as protoplasmic or fibrillary astrocytes (Figure 6). Many were giant cells with large hyperchromatic nuclei and rudimentary or extremely short, plump, cytoplasmic processes. Other tumor cells were multinucleated giant cells without processes. Mitotic figures were common and frequently bizarre.

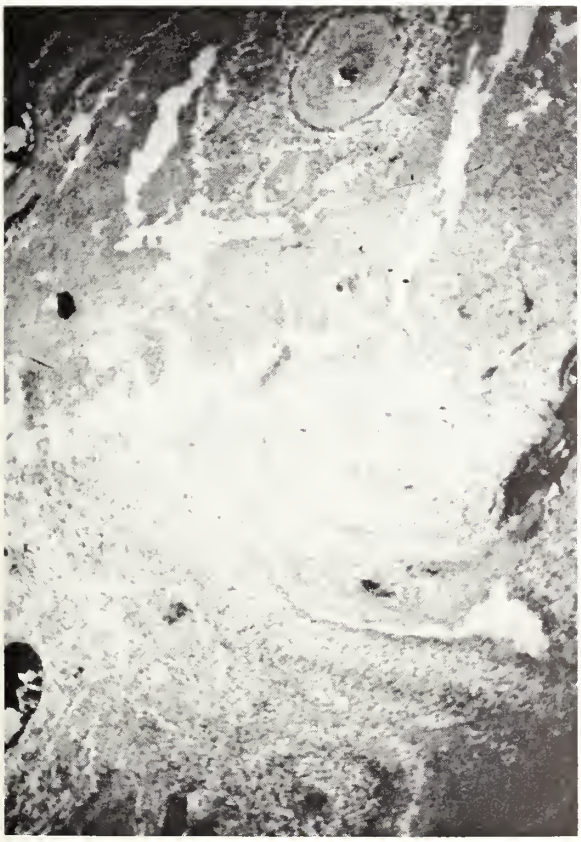

Figure 5. Typical area of the tumor demonstrating increase in number and size of vessels, necrosis and pallisading of tumor cells around areas of necrosis and blood vessels.

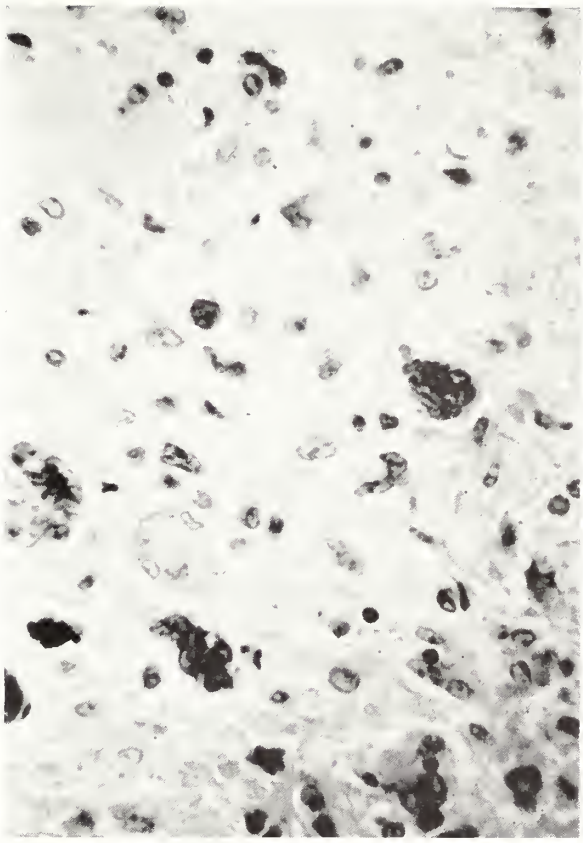

Figure 6. High power microscopic view to demonstrate characteristics of the tumor cells.

The perivascular distribution of the tumor cells is shown in figure 7. The cells were attached to the walls of the vessels in the area by sucker feet being characteristic of astrocytes. A high power view of a vessel demonstrates a marked intimal proliferation tending to occlude the vessel (Figure 8). Frequently this process progresses to complete occlusion of the vessel and is responsible for the characteristic areas of necrosis and hemorrhage seen in this tumor in the gross.

Although the tumor microscopically extended only as far as the substantia nigra, there was extensive hemorrhage and infarction beyond the margin of the tumor into the pons. There was also a fair amount of edema present. The lesions in the pons plus the hemorrhage into the ventricular system was presumed to be the immediate cause of death.

Microscopic sections of the lungs revealed pulmonary edema and congestion with some focal hemorrhage into the alveoli. There were also focal areas of coalescence and dilatation of the alveoli.

The five sessile, yellow-white nodules in the ileum measured 0.7 to 0.9 cm. in diameter. Microscopically

Figure 7. Typical pallisading of tumor cells about the vessels.

these tumors were composed of compact, but irregular and discrete masses of dark-staining cells without glandular arrangement. They had an abnormally dense eosinophilic fibrous stroma and extended into the muscularis and into the serosa. These were typical carcinoids or argentaffinomas. About 38 per cent of extra appendiceal argentaffinomas metastasize to regional lymph nodes or liver; but no metastases were found in this case.[1]

The liver nodule was a firm, discrete, 1 cm., rosette-like, yellow nodule which bulged from the cut surface of the liver, and was considered to be a metastasis from a tumor in the ileum at autopsy. Microscopically the nodule was composed of liver cells which displayed no lobular pattern. The adjoining liver tissue was congested. There was no congestion within the nodule, but there were many multinucleated cells with hyperchromatic nuclei and considerable fatty metamorphosis. The latter was responsible for the yellow appearance in the gross and led to the consideration of this nodule as a metastasis from one of the yellow nodules in the ileum. In many respects this liver nodule is typical of those seen in post-necrotic cirrhosis, and therefore can be considered nodular hyperplasia. The mechanism, however, for its production in this case was not evident.

Each testis weighed five grams, and grossly appeared atrophic. Only vestiges of the seminiferous tubules were seen microscopically. Some were markedly atrophic and others were completely hyalinized. In the space vacated by the tubules there were nests and sheets of fairly uniform polyhedral eosinophilic cells which represented a moderate interstitial cell hyperplasia.

The small, firm, grape-like, white clusters in the gall bladder were connected by thin fibrous connective tissue strands to the mucosa. The mucosa of the gall bladder showed no evidence of chronic or acute inflammation. The finger-like projections of the papilloma contained finely granular material which, in every respect, resembled that usually seen in cholesterolosis of the gall bladder.

In summary, this is a classical case of glioblastoma multiforme or malignant astrocytoma, or, preferably, grade IV astrocytoma, in compliance with the criteria set forth by Kernohan.[2] This is the most common glioma, especially in the elderly, since it comprises about 90 per cent of the gliomas after age 60. In this case the tumor occurred in the frontal lobe, which is the most common site for such a tumor, and demonstrated the frequent extension to the opposite frontal

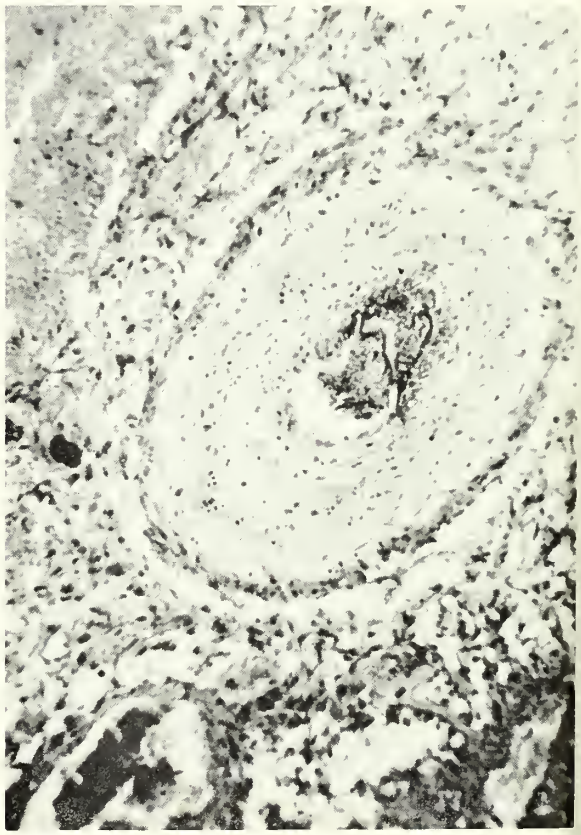

Figure 8. A high power view of one of the vessels seen in figure 5 showing the intimal proliferation and tendency to occlude the vessel.

lobe. There was also the usual lack of involvement of the meninges or extracranial metastases. The patient's clinical course was unusually short compared to the average six to seven months reported by Kernohan for his 161 cases of grade IV astrocytoma.[2] Of interest is the occurrence in one individual of three primary tumors in three separate organs and the presence of hyperplasia in two other organs.

Dr. Delp: Thank you. Do you have any comments about our case, Dr. Williamson?

Dr. William P. Williamson (neurological surgeon): It is difficult to differentiate brain tumors and cerebrovascular disease in the elderly patient. In some cases there is hemorrhage in brain tumors which become better as the hemorrhage is absorbed. Some cases of cerebrovascular insufficiency may have a progressive course, and the spinal fluid will not differentiate the diagnosis. Patients with brain tumors may not have papilledema and may not have a fatal progressive course. Spinal fluid pressures and spinal fluid proteins may be normal. The only positive way of making the differential diagnosis is to use contrast media. Every case is individual. Most of these patients have a rapidly progressive history, and most of these cases are malignant.

Dr. Delp: Thank you, Dr. Williamson. Taking over the term chronic meningitis from the diagnostic situation and listing those items included in the differential diagnosis, one will eventually come to the situation commonly called aseptic meningitis or sterile meningitis. Sublistings under this group include carcinomatosis of the brain and brain tumor.

Summary

Dr. Delp: Primary brain tumor is frequently as difficult of recognition as is its management. In the elderly patient, here described, the compounding of the problem is well delineated. History, neurological examination and the routine laboratory studies were wanting. Only contrast studies of one type or another could have solved this diagnostic problem.

Pathological Anatomical Diagnosis

Primary

Astrocytoma, grade IV, involving the left and right frontal lobes, left hippocampal gyrus, left basal ganglia, the midbrain, with focal hemorrhage and infarction in the pons and hemorrhage around and into the aqueduct of Sylvius and the 4th ventricle.

Pulmonary congestion and edema.

Acute passive congestion of the liver and spleen.

Gastromalacia, advanced, with perforation.

Accessory

Hyperplastic liver nodule.

Five argentaffinomas of the ileum.

Papillomatous cholesterolosis of the gall bladder.

Testicular atrophy with moderate interstitial cell hyperplasia.

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2. Kernohan, J. W., and Sayre, G. P.: Tumors of the Central Nervous System, AFIP Fasicles, 35 and 37, 1952.

Sports Medicine Congress at PAN-AM Games

A Sports Medicine Congress, one of the most significant conferences of its kind ever scheduled, will be held in conjunction with the 3rd Pan American Games, scheduled for Chicago next Aug. 27.

The Congress will meet on the Chicago campus of Northwestern University Sept. 1-2, and will feature outstanding experts in the fields of athletic training, care of injuries, diet, cardiovascular effects of sports activity, and many other facets of the sports medicine field.

T. R. Van Dellen, M.D., Chicago, medical and health columnist for the *Chicago Tribune,* is general chairman of the Congress.

Paul Dudley White, M.D., world-famed Boston heart specialist who attended President Eisenhower during the latter's illness and convalescence, will be the featured speaker at the first plenary session of the Congress Sept. 1. On Sept. 2, Allen J. Ryan, M.D., attending surgeon and physician specializing in treatment of athletic injuries, Menden, Conn., Hospital, will be the speaker.

Three outstanding athletic trainers are also on the program: Dr. Joseph Doller, Chicago Cardinals football club; Frank Newell, Purdue University, and Thomas E. Healion, Northwestern University.

All sessions of the Congress will be open to all persons interested in the field of sports medicine. Further information can be obtained from Dr. Van Dellen at Pan American Games, Inc., 310 South Michigan Ave., Chicago 4.

Yellow Fever

History of the Disease in the Eighteenth And Nineteenth Century

C. ROBERT WHITE, M.D., ***Kansas City, Missouri***

Yellow fever has been a scourge of mankind for centuries; its mass killing power has been felt in many different parts of the world. This article will focus upon some of the aspects of the early history of yellow fever in the United States during the 1700 and 1800's when the disease was particularly rampant.

Origin of Yellow Fever

The exact origin of yellow fever is unknown. However, it is generally held that yellow fever originated either in West Africa or South America since both of these areas are endemic for the disease. It is not the purpose of this article to enumerate the pros and cons of this debate, for there are many good arguments on both sides; still, West Africa seems to be a little more the favored place of origin. H. R. Carter writing on this subject closes his most extensive book by this statement: "The biological evidence as regards both the insect vector and the human host, is, so far as it goes, altogether in favor of an Old World—hence African—origin of yellow fever, and this, we find, is entirely consistent with the historical evidence." This opinion is also held by H. H. Scott and the authors of *Thumbnail Sketches of Eminent Physicians*. No matter where the exact origin of the disease was, it is well known that with rapid development of maritime commerce and explorations, yellow fever spread in all directions and became one of the most—if not *the* most—dreaded diseases in the world. H. A. Kelly states that the first authenic record of a yellow fever epidemic occurred in Central America in 1596. However W. B. Blanton says: "It is usually stated that yellow fever did not appear in America until 1647. It was at this time that the great epidemic occurred in Cuba, and the first outbreak in America is recorded as the 'Barbadoes Distemper.'" From the foregoing remarks, it can be concluded that much of the early historical data on yellow fever is inadequate and contradictory even though hundreds of volumes have been written upon the subject.

This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. White is now serving his internship at the General Hospital, Kansas City, Missouri.

Theories of Causation

It should be kept in mind that most of the early pioneers in this field believed in *multiple* causes of disease—and not in a single etiology of a particular disease. Thus, since each early physician believed in many different causes of yellow fever, it is no wonder that there are so many different etiologies listed. Also the early scientist believed in *predisposing factors* in yellow fever—just as is believed today in many diseases. The only problem is that in reading early accounts of this disease, it is difficult at times to separate predisposing factors from true causative factors. Still, many items were listed as simply predisposing factors. Dr. Benjamin Rush lists the following as predisposing factors in yellow fever: great labor, heat, intemperance, fear, grief, cold, sleep, and immoderate evacuations. He further stated that men and pregnant women were more susceptible to it. In one of his patients he cites "a segar" as a predisposing factor. Dr. Daniel Drake in writing about predisposing factors says that it is well known that the victims of yellow fever are chiefly immigrants. Louis states that the disease was more severe in men than in women and children. In his book on yellow fever, Touatre remarks: "As has already been said, age, alcoholism, excesses, bad habits, insufficient food, unsanitary lodging, emotions, fright, excessive work, and the lack of care, influence greatly the course and termination of the disease." In addition to the above mentioned predisposing factors, La Roche mentions lack of sleep, too much bleeding and purging, the sex act, dampness, removing ulcers and blisters, light, atmospheric electricity and pressure, and dryness as contributing causes.

In regard to racial predisposition to the disease, there was much disagreement concerning the Negro. Dr. Rush in his first writings on yellow fever stated that the Negro was immune to the disease; later, however, he states that he is not immune. La Roche says that the Negro is more exempt and that as the per cent of white blood increases in the Negro, his susceptibility also increases. Dr. Blanton in his *Medicine in Virginia in the Nineteenth Century* states that Negroes were affected as much as white people.

It is difficult to write about the early causation of yellow fever without mentioning that many volumes were written just upon this one aspect of the subject

alone. Generally speaking, however, there were two basic theories on the causation of yellow fever: (1) the contagion theory; and (2) the non-contagion theory. The contagion theory held that the disease was imported, while the non-contagion theory held that the disease arose from local causes. Therefore, the contagion theory was sometimes called the "theory of importation" while the non-contagion theory was known as the "theory of local causes." Medical men of this period argued vigorously about these two theories. In fact, it is recorded that two doctors were killed in a duel fought over this very point. Some of the arguments for the contagion theory were as follows:[16]

Contagionist

1. Yellow fever is dissimilar to the ordinary autumnal fevers which arise locally.
2. The ordinary autumnal fevers make their appearance with more or less regularity, and follow a similar course nearly every year, while yellow fever does not.
3. Yellow fever very generally commences in seaports, and especially in those that communicate with the tropics or other places within the yellow fever zone.
4. Yellow fever appears at times when nothing peculiar, as regards meteorological phenomena and those circumstances of locality to which domestic causes of febrile diseases are attributed, presents itself, capable of accounting for the occurrence of the disease.
5. The communication of the disease from the sick to the well may, in general, be traced in a satisfactory manner.
6. The appearance of the yellow fever has always coincided with the prevalence of the disease in parts of tropical regions and other places with which commercial and other relations are entertained.

The contagionists were many in number. In favor of the contagion theory, Dr. William Tully in writing of the epidemic in Middletown, Connecticut, in 1820, says:

> "In regard to the origin of this disease, in this place, let it be noted, that Middletown is unequivocally one of the most salubrious situations in the whole United States, that it is remarkable cleanly, and free from all noxious exhalations, either from stagnant waters, or collections of filth, from manufacturing or commercial establishments of any sort; that this disease occurred at the most healthy season of the year, and one at which there was the most perfect absence of all other acute diseases; that the majority of the cases might be *incontrovertibly* traced to the Brig Sea-Island, a foul vessel from St. Jago de Cuba, or to other shipping; that a similar disease followed the progress of the Sea-Island, commencing, at least in one case, at the very mouth of the river, and occurring in whatever neighbourhood she stopped; and that no cases this season, in other towns, are known to have happened, except in her vicinity, or which had not a certain connexion with her; and finally, though the same disease has frequently occurred here before, yet it has *never* happened, without being brought from aboard some vessel recently arrived from foreign ports."

Dr. Benjamin Rush, who was at first a contagionist, but who later became a non-contagionist, writes the following concerning the yellow fever epidemic in Philadelphia in 1793, ". . . the citizens, as well as most of the physicians of Philadelphia, had adopted a traditional opinion that the yellow fever could exist among us only by importation from the West-Indies." Later in the Philadelphia epidemic, the College of Physicians sent a letter to the governor upholding the imported nature of the epidemic.

Non-Contagionist

At the other extreme, the convincing arguments for the non-contagion theory were as follows:[16]

1. The disease appears at determinate periods of the year.
2. The disease is one of hot climates and hot weather only, and is arrested by cold.
3. The disease is influenced in its prevalence and severity by atmospheric vicissitudes.
4. The maligancy of the disease is increased by continuance of residence in the infected localities.
5. The area of the sickly locality is sometime very circumscribed.
6. The fever is not communicated beyond the infected locality.

Among some of the believers in non-contagion was Dr. Richard Bayley who traced the origin of one yellow fever epidemic in 1795 to decaying cabbages. The great Dr. Benjamin Rush traced the epidemic in Philadelphia in 1793 to decomposing coffee. His opinion was later extended to include other decomposing matters, for he later writes:[25] "I return to remark, that the yellow fever is not contagious in its simple state, and that it spreads exclusively by means of exhalations from putrid matters, which are diffused in the air." Lastly, one of the greatest proponents of the local origin theory was La Roche who writes: "The disease has arisen here (Philadelphia), and in other parts of this country, in Europe, and in tropical climates, as well as on shipboard, under circumstances which leave no doubt as to the reality of a local origin."

In addition to the above two opposing groups, there were a few physicians who felt that the cause of yellow fever lay somewhere in between the two theories. James Hardie, writing on the New York epidemic of 1822, says: ". . . men of reflection do not

differ so widely as is generally imagined. It is agreed on all hands, that the disease is either imported or that it originates from local causes. Both may be right." Dr. Daniel Drake likewise does not choose sides when he says: ". . . the cause of this disease should be kept *sub judice*. We are not compelled to choose among conflicting theories and declare that which is best supported to be established. It may be more probable than any other, and yet not be true."

In studying about some of the early ideas concerning the cause of yellow fever, it is interesting to mention some of the vague ideas and observations which the doctors of the times had. For instance, many early physicians felt that the *weather* and the *atmosphere* had much to do with causing the disease. Richard Bayley writes: "Accordingly, we have it upon the evidence of several very respectable characters, that a peculiar constitution of the air, the sensible qualities of which were *excessive heat and moisture*, was generally prevalent. This state of the atmosphere, operating with the exhalations arising from the decomposition of dead animal and vegetable matters, in low and damp situations, were a frequent cause." Hardie remarks that cool mornings and evenings, accompanied by hot days, contribute greatly to spread infection. Dr. Hardie also quotes Dr. Edward Miller, then Resident Physician to the Governor of New York, who in 1806, says: ". . . a *pernicious exhalation or vapour floating in the atmosphere, is the primary and essential cause of this disease*." Da Costa in his book on *Medical Diagnosis* writes: "All we know of its cause is, that it cannot exist without a high temperature, and that frost is its greatest enemy." In *The Medical Annals of Maryland* it is stated that people contracted the disease at night and not in the daytime because there was a concentration of noxious vapors near the earth at night which was rarefied by the rays of the sun in the daytime. Finally, Dr. Clendinen in his *Résumé of Yellow Fever* writes about yellow fever patients "charging" the atmosphere.

While many of the above observations of the early physicians may seem somewhat ridiculous today, it is interesting to note that they made some observations which approached the truth. Dr. Benjamin Rush writing about the epidemic of 1793 noted that the mosquitoes were numerous and were "a certain sign" of an unwholesome atmosphere. Even Thomas Jefferson remarked that yellow fever was "generated near the water side, in close built cities, under warm climates." James Hardie writing in 1822 mentions that stagnant water gives rise to the "miasma," and that draining off the water will prevent the disease. Finally, a Texan by the name of Edwards said in 1836, that stagnant water breeds mosquitoes.

Although the above writers made a few observations which coincidentally approached the truth regarding this disease, there were those of the same period who had definite theories which laid the foundation for our modern viewpoint on the causation of yellow fever. In the late 1700's, Dr. John Crawford (a contemporary of Dr. Rush) asserted that "the plague, yellow and every other fever and every other disease we experience, must be occasioned by eggs inserted without our knowledge into our bodies." In 1848, Dr. J. C. Nott refuted the miasmatic theory and upheld the insect or animalicular theory; he suggested a relationship between yellow fever and the mosquito. In 1853, Louis Beauperthuy asserted his belief that mosquitoes were responsible for the spread of yellow fever.[33] In 1881, Carlos Finlay presented a paper suggesting that the mosquito carried the infection from man to man. He also was right in choosing the Culex mosquito as the vector. Also in the 1880's, came the work of George Sternberg whose job it was to prove or disprove the claims of Finlay and the rest. All these men—Crawford, Nott, Beauperthuy, Finlay, and Sternberg—laid the foundation for the later solution to the yellow fever problem which was effected by Dr. Walter Reed and Dr. James Carroll. Unfortunately, it is not within the scope of this article to cover Reed and Carroll's contributions, which are a work in themselves.

Theories of Prevention

With the many different theories on the etiology of yellow fever, a great many different views concerning prophylaxis would be expected. This is most certainly true. After looking over the long lists of prophylactic measures and reading about the sincere concern that each advocate had for his patients, it seems to be a rather pathetic situation when it is realized that most of these preventive measures were useless in combating this disease. Nevertheless, prophylactic measures can be arbitrarily divided into two classes: (1) personal preventatives and (2) public preventatives.

Personal Prevention

As far as *personal* prevention was concerned, Benjamin Rush was a strong advocate of avoiding constipation and fleeing from infected cities. If flight were not possible, he suggested fasting, sweats, and bloodletting as the next best means of prevention. These methods according to Rush were supposed to "help the body vibrate better."[25] Matthew Carey states that many women and children smoked cigars and carried garlic to prevent getting the disease. F. R. Packard in his *History of Medicine in the United States* says that Dr. John Redman of Philadelphia (who was a teacher of Dr. Rush) used vinegar on his face and chewed tobacco as a means of prevention.

Richard Bayley of New York City advised paying the strictest attention to personal hygiene. La Roche expressed a realistic attitude on the prevention of yellow fever when he said:[16] ". . . much that has been done is founded on views of such doubtful correctness respecting the origin and mode of propagation of the disease, and is not only so perfectly useless, but so evidently calculated to lead to detrimental consequences, as to call for serious examination." Still, his methods of personal prophylaxis consisted of keeping happy, getting enough sleep, avoiding cold river baths, wearing flannel next to the skin, avoiding fatique, avoiding spicy foods and alcohol, avoiding sexual intercourse, and avoiding going abroad on an empty stomach. Dr. Daniel Drake suggested:

1. Avoid carefully every exciting cause.
2. Let the plethoric occasionally lose blood, especially under any sense of fulness or pain in the head.
3. Keep the bowels regular with mild mercurial laxatives.
4. Under any feeling of indisposition, let the patient lie by, and after proper alvine evacuation, promote the functions of the skin with alkaline diaphoretics and diluents.

In addition to the prophylactic measures suggested by the more popular physicians listed above, many references are made to the burning of gunpowder, the shooting of artillery, the burning of incense, the white-washing of houses, and the general use of camphor, chloride of lime, and quinine in personal prevention. James Hardie writing in 1822, stresses the need for better preventive measures when he writes: ". . . though volumes have been written upon the subject of its origin (yellow fever), we now know just as much about it as we did thirty years ago, when the question first began to be agitated. . . . Would they (physicians) not have been much better employed in devoting their time and talents, in a friendly manner, to devise the best mode of its prevention and cure?" Hardie ends his section on prevention by saying:[13] "If this calamity can be prevented by expending a *million of dollars*, we shall purchase it cheaply."

Public Prevention

As far as *public* prevention was concerned, there was again much disagreement. Many of these arguments basically sprang from the divergent views which were held in regard to the origin of yellow fever, *i.e.* the contagion versus the non-contagion theories. It would stand to reason that if a physician believed in the contagion theory of origin, he then would also demand *quarantine* laws regarding incoming people and ships; while if the physician favored the non-contagion viewpoint and therefore believed in the theory of local causes, he would be against quarantine laws and would stress cleaning up the local, infected area. Such was certainly the case, and many articles and books were written upon this very subject. As far as specific public health measures were concerned, James Hardie felt that a "Common Council" should be appointed "to visit each house, yard, cellar, and wharf" and make a report on matters of public health. Dr. A. Clendinen in his *Résumé of Yellow Fever* stressed the need for "dirt that is deep enough"; he felt that decaying matter released carbonic acid which made people sick and that deep earth was a disinfectant for yellow fever. Still later in his book, Dr. Clendinen asked for the establishment of a "National Board of Health" to formulate health regulations. In regard to the Philadelphia epidemic of 1793, it is recorded that letters and newspapers from Philadelphia were dipped in vinegar and dried before being read. Touatre in his book on yellow fever felt that streets should be paved and gutters should be cleaned-out in order to prevent the disease. Dr. Benjamin Rush in 1797 suggested covering putrid matters with water or earth, washing streets and houses, scattering lime over decaying matter, and exploding gunpowder. Finally, the Treasury Department's *Articles on Yellow Fever* written in 1899, still suggested disinfecting mail bags with formaldehyde gas.[32]

All in all, the early physician knew two indisputable facts about yellow fever prevention: (1) *frost* stopped the disease; and (2) the sure way to prevent contracting the disease was to *flee*. In regard to flight from the disease, it is recorded that Southerners left the Deep South and came North during yellow fever epidemics. Likewise, Dr. Rush says that at one time one-third of the population of Philadelphia fled for their lives. This included the President of the United States, his Cabinet, and many other high government officials. The fugitives from Philadelphia and elsewhere created many problems: ferrymen charged them enormous fees; many cities refused to accept fugitives; some fugitives were actually tarred and feathered; many died of starvation along the way; and many found that their home-cities would not let them return. It is reported that fugitive physicians were especially despised as they were looked upon as traitors.[22]

Treatment Procedures

In regard to the treatment of yellow fever, Dr. Daniel Drake writes: "It would require a volume to present all the methods of treatment which the physicians in different places and seasons have pursued in this fever, a sufficient proof that it is not decidedly under the control of any." Still, despite this statement,

there were many physicians who felt that their method of treatment was entirely satisfactory. Probably the most dogmatic physician of his time was Benjamin Rush. Early in the Philadelphia yellow fever epidemic of 1793, Rush tried all the current forms of treatment and was quite dissatisfied with each of them. Finally in desperation, he came across a book by Dr. John Mitchell of Virginia who used purges in treating yellow fever. Immediately, Benjamin Rush seized upon the idea and started practicing it. Up until this time, the strongest purges had been given by Dr. Thomas Young who originated the famous "Ten-and-Ten" treatment—ten grains of calomel (mercury) and ten grains of jalap.[22] Rush increased the jalap to 15 grains along with ten grains of calomel; he gave three doses of this—one every six hours—until they produced large evacuations. Together with purging, Rush used bloodletting. He advocated bleeding until "four-fifths of the blood contained in the body are drawn away." Furthermore, according to Rush his treatment was highly successful, for he writes: "Thank God! Out of one hundred patients, whom I have visited or prescribed for this day, I have lost none." Rush quit telling people to flee from Philadelphia and instead told them to get "a mercurial physician," for he add, ed, "You have nothing but a yellow fever."[24] It is interesting to note that C. B. Burr in his *Medical History of Michigan* mentions that with the widespread use of calomel for yellow fever, many persons developed "calomel sore-mouths" and lost their teeth.

Of course, there were many physicians of the day who disagreed with Rush and called his remedy "a murderous dose" or "a dose for a horse." One of these physicians was Dr. William Currie who denounced bleeding and mercury and instead used tartar emetic in tea and vinegar baths. Both Rush and Currie were famous physicians in their day, and each had many followers. Matthew Carey in 1794, speaks favorably of jalap and mercury, but mentions that too often too much blood was withdrawn. Richard Bayley, writing about the New York epidemic of 1795, mentions placing the patient in an airy room and using purges, blisters, and snake-root. James Hardie writing in 1822 renounced bloodletting and listed the following procedures for those who became ill and could not get a doctor: take some glauber or epsom salts; perspire freely with hot tea; apply mustard plasters to the feet; and avoid all animal food. Dr. P. Louis in his book on yellow fever recommended the application of twenty leeches to the epigastrium in addition to acid drinks and enemas. Dr. Ashbel Smith, writing on the yellow fever epidemic in Texas in 1839, remarks: "With prompt medical advice, and a good nurse, I know no severe disease so perfectly within our control, and requiring so little attention."[30] Dr. Smith bled his patients to "faintness" (12-18 oz.) and gave them no food until the convalescent period. Dr. William Tully in his *Essays on Fevers* remarks that with yellow fever a remission occurred with or without treatment; he, however, strongly recommended using calomel and opium. Dr. John Sappington of Arrow Rock, Missouri, who was so bitterly opposed to mass purging and bloodletting, used quinine, mild emetics, and a light diet. However, Sappington says that if *he* came down with yellow fever, he would prefer to be allowed to get well without taking any medicine. This same feeling is expressed by Touatre who remarks concerning the treatment of yellow fever: "The Lord save me from my friends, I can take care of my enemies."[31] Touatre used mainly conservative treatment—rest, diet, and cold spongings. Dr. L. F. Salomon of Louisiana wrote an article in which he claimed that potassium nitrate was *the* drug in the treatment of yellow fever. La Roche writing in 1855, discussed some 22 different classes of yellow fever therapy. He recognized that bleeding could cause collapse of the patient, although he still used it to some extent. He warned against using emetics, mercury for salivation, and quinine. During convalence, he advised patients to abstain from animal food, have daily bowel movements, have peace of mind, and avoid sexual intercourse, which if indulged in, could be fatal. Like La Roche, Daniel Drake in 1854, writes quite completely on the treatment of yellow fever. Drake remarks that cups or leeches were more generally employed than the lancet, but that many physicians regarded the lancet as a *sine qua non* in treating yellow fever. Drake says that emetics and cathartics were going out of style by 1854, but that some calomel, quinine, and skin irritants were still being used successfully. It is of interest to note that Drake admits that he has never seen a case of yellow fever in his life; however, his writings are based upon numerous contacts with physicians who had extensive experience in treating this disease.

Summary and Conclusions

It has been shown that even though the exact *origin* of yellow fever is somewhat obscure, its importance in early American history has been very real. Certain early ideas concerning the *causation* of yellow fever have been mentioned—some of which were fanciful, and some of which laid the basis for our modern scientific understanding of the disease. The early American physicians' concepts concerning yellow fever *prophylaxis* were presented. Lastly the various methods of *treating* this disease were described.

It must be remembered that while this paper was an attempt to present the early medical history of yellow fever in the United States, this is only one aspect of the imprint which yellow fever made on the history of the United States. Other aspects of this disease—for instance, the socioeconomic one—surely were

(Continued on page 329)

Maternal Mortality Report

The patient, a 29 year old gravida 11, para eight, died in a well equipped, well staffed hospital on a large government installation. The cause of death as indicated on the certificate was shock due to postpartum and puerperal bleeding due to rupture of the uterus.

Patient's prenatal care began in the fourth month of pregnancy and was regular and adequate. She experienced no complications in the prenatal period other than anemia which was treated by transfusion of 500 ccs. of blood as well as hematinics. History indicated that she had received blood in 1933, but reason was unknown. Obstetrical history disclosed three spontaneous abortions and seven normal deliveries prior to the present pregnancy.

She was admitted to the hospital in active labor one week prior to her expected date of delivery. The diagnosis of double footling breech was established and delivery was accomplished when the cervix was completely effaced "but not retracted" by the application of Simpson forceps to the after coming head under Trilene anesthesia. This resulted in a laceration of the cervix at three o'clock extending four inches into the lower uterine segment. Patient went into shock immediately and steps were taken to transfer her to surgery for immediate hysterectomy. However, she was not taken to the operating room until approximately one hour and fifty minutes later, the delay being brought about by the failure of the operating room crew to be notified immediately, and also the failure to locate the key to the operating suite as quickly as it should have been. In the meantime, blood transfusion was given continuously and when the operating room was available a total hysterectomy was performed. Total blood administration was five units and loss was estimated conservatively at 3,000 ccs.

On the first and second post operative days hemoglobin was 8.9 grams and 7 grams respectively. Patient became jaundiced with an icteric index of 86 units and developed dyspnea and cyanosis with rales in the left lung base posteriorly. On the third post operative day two more units of blood were given. Hemoglobin was then found to be 12.8 grams and on the fourth day it was 16.6 grams with the icteric index of 60 units. She continued hypotensive during this time and was given Levophed during periods of extreme hypotension without response. Because of this lack of response she was also given adrenal cortical extract. She received massive doses of penicillin and streptomycin throughout the post operative period and in addition Achromycin intravenously on the fifth post operative day. Death occurred on the sixth post operative day after progressive deterioration.

Autopsy revealed that the final mechanism of death was pulmonary edema, and early bronchial pneumonia. This condition was brought about by a profound and prolonged shock as a result of blood loss from laceration of the uterus complicated by intravascular hemolysis probably due to the administration of incompatible blood.

Committee opinion: Committee was impressed with the following factors which in sequence resulted in the loss of this patient. (1) The inherent danger, of the grand multipara especially, for uterine rupture with obstructed labor and unusual presentation with or without instrumentation. (2) The apparent technical error of attempting breech extraction through an insufficiently retracted cervix. (3) The use of an anesthetic agent which is in reality an analgesic and would not provide effective relaxation for a manipulative process. A more effective anesthetic agent might not only have increased the degree of relaxation, but might have permitted the introduction of large clamps or ring forceps on the basis of broad ligaments at the time of the laceration thereby reducing hemorrhage. (4) The inherent danger of blood transfusion and the never-ceasing care required in typing and cross matching. (5) Delay in making the hospital operating room facilities available for emergency surgery.

Classification: Maternal death, obstetrical, preventable.

One of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas.

PRESIDENT'S PAGE

Dear Doctor:

Every Doctor of Medicine should avail himself of the privilege and opportunity of attending the annual meeting of the American Medical Association.

The 1959 meeting was concluded recently. It was this writer's privilege to attend under the tutelage of the Kansas Medical Society's seasoned delegates Dr. Gsell and Dr. Pyle. We learned much of the A.M.A.'s workings. Yet the complexity and immensity of our parent organization is such that only a smattering of knowledge can be obtained in one short session.

The uninformed critic of the A.M.A. would do well to study the mechanism by which the policies of the organization are determined. The House of Delegates is the governing body and spends many weary, "posterior browsing" hours in its deliberations. Resolutions are introduced to this body, then sent to proper reference committee for public hearing. Any member of the A.M.A. is given a respectful, courteous audience. It is here that the "common" man has his chance to speak. It is here that the critical should, and does, make his opinion known. The various state and local societies give the Committee their views on the problem. But, the individual is given every opportunity to speak for himself. A recommendation from the reference Committee is then forthcoming.

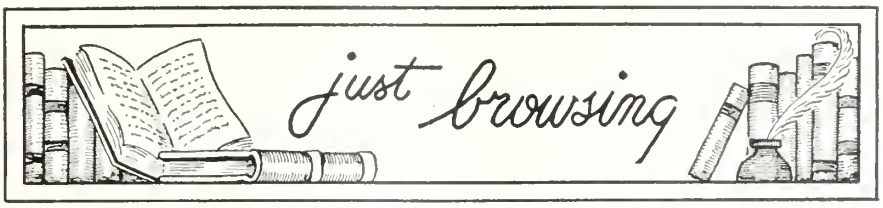
The final debate and action rests with the House of Delegates in another lengthy session. The discussion was lively and pointed. The speaker, Dr. Vincent Askey, a recent guest of the K.M.S., was magnificent and eminently fair in his rulings and decisions.

The scientific and commercial exhibits were diversified and interesting. The lectures covered every field of medicine and were well attended. Post Graduate Education of the physician remains an important part of the annual meeting.

The impressive part of the conclave was the sincere, honest and time consuming discussions given to *your* problems by the elected officers and delegates of the A.M.A. The problems are knotty and cover a surprisingly wide range. Final action may not agree with our personal opinions, but are arrived at in as democratic a manner as possible. Attendance at such a session would do much to silence, or at least muffle, the most vociferous critic.

Fraternally yours,

Glenn R Peters M.D.



"It is with pleasure I greet the members of the . . . Society . . . at this the fifteenth annual gathering. Our year of separation has rolled around, and we meet again to enjoy, appreciate and gain once more by exchange of thought and the expression of thought from the experience of our work and study accomplished since we met last. These our annual meetings are not only a matter for mental gain by the mental attrition had, but they in reality are, and should be so looked upon, a pleasant recreation for every one of us medical men—a diversion from our practical professional work, a relief, and agreeable relief, from the continued mental strain which is the lot of every true worker in our calling. Let us at this present meeting each believe this, and each of us try, too, to contribute his mite towards a goodly sum for professional advancement and pleasurable diversion, for mental profit and enjoyable association, the result to be absorbed and assimilated by all.

"I would, with these objects in view, be glad if it met the wishes of the members, to have as little time given as possible, none more than is actually essential, for the dry business portion of our sessions, but that reading of medical papers and discussions on them, and relations of cases, should occupy the greater portion of the sessions of the Society. Being one of those who believe that we have all in the past been too much trammeled by weight of authority, I am always glad to hear and profit by the opinion and experience of the workers in the profession everywhere and at all times.

"The opinion of a careful observer, the result of the reflection of the earnest, intelligent worker, is of more real value to our profession than the ideas of many who have written into fame by book making, based as the latter often is, on little or no self-experience.

"If this be true as I assert it, the experience and reflection on this experience should be sought from each of the active workers of our Society, and I believe that most of our members are very active. Many have been the advances in medicine made by the clear-thinking practitioner when driving quietly alone to a distant patient, and much of our clearest, best thought has been had from the country practitioner while quietly pursuing his duty in a thinly-settled region.

. . . . . .

"In accordance with the wish I have expressed, viz., that it may be the desire of the members of the Society to give as much time as possible for the real and profitable medical work of our meeting, I have purposely made my address to you a very brief one.

"Thanking you sincerely for the great honor you have conferred upon me in electing me your President, we will now proceed to the more interesting work of the session."

The preceding quotations constitute over half of the ADDRESS OF THE PRESIDENT at the Society's annual session in 1881, given by B. E. Fryer, M.D., U.S.A., of Fort Leavenworth. The remaining portion deals concisely with several important legislative problems of the day—medical registration (or regulation) laws, the newly passed prohibition law of the state as it related to physicians, and the improvement of medical schools.

To express oneself so forcefully, so thoughtfully and yet in so few words requires a keen insight into the real problems and a keen ability to reach and present logical conclusions. He must have been a valuable member of the Society, and sets an example which we could well follow.—*O.R.C.*

EDITORIAL COMMENT

The Federal Budget

The Kansas State Chamber of Commerce recently prepared a provocative analysis of the federal budget which contains no information of especial interest to medicine, but has much to do with every individual as a citizen. In that regard a summary might be justified in this JOURNAL.

The federal deficit is larger than ever before and again in 1959 spending will exceed income by 13 billion dollars and, everything remaining just as at present, the 1960 deficit will be not less than 3 billion. Today the United States Government owes 285 billion dollars and pays 10½ cents from each tax dollar collected for interest on indebtedness.

The federal income for this year will be about $77.1 billion which broadly divided comes from the following sources:—individual income taxes are responsible for $40.7 billion, corporations pay $21.5 billions, excises produce $8.9 billion and others account for the remaining $6.0 billion dollars.

Almost half of the total expenditure is for national security and since the day of the Sputnik money for missiles has popularly been credited for continuing high budgets. The truth, according to the Chamber of Commerce, is that 10 billion more dollars were spent for defense in 1954, a post-Korean-war year, than is proposed for 1960. So the increase is largely due to enlarged programs in fields other than defense.

The problem of course is to know how much federal debt the economy of the United States can endure. Economists have brought forth many answers and during the years have revised their predictions. The probable truth is that nobody knows, but an accurate guess will quite possibly be of very little help because the situation may well balance suspended for some time after an irreversible condition exists. Whether that already is the case is a question of some current debate by experts in the subject.

Barring such collapse there still appears to be three alternative approaches to this problem. There must be higher taxes, increased deficits or a reduction in expenditures. There seems to be no other course and in a democracy the individual citizen has a voice in such selection.

In a democracy freedom is not stolen from the people, but is carried away by default. This need not happen, even yet, but can be avoided only if individual citizens, such as the individual doctors of Kansas take their government seriously and set to preserve whatever is believed to be of value. Here also there are two additional alternatives. One is to sit by and allow someone else to do this and the other is to sit by and accept the consequences even though no one else chooses to save the America our forebears founded.

It is not difficult to write like this, nor is it hard for the doctor to agree. The problem is not one of purpose but of motion. Blue prints are plentiful and cheap. It is the construction that takes effort.

State Meeting Format Committee

Among the innovations adopted by the 1959 House of Delegates was the formation of a State Meeting Format Committee to explore alterations in the Annual Sessions which would renew membership interest.

In recent years, the state meeting has attracted fewer members than previously. The program committee has often been humiliated before a guest speaker of national recognition because of the size of his audience. Reservations for luncheons, special events, and for the annual banquet have consistently required reduction even though the quality of the program has been acknowledged to be superior.

This is by no means singular to Kansas, but represents the experience of almost all societies everywhere. The causes for this condition are known, at least in part, to be due to the large number of graduate educational opportunities that are available today through national professional associations and the postgraduate programs of the University of Kansas School of Medicine.

The Kansas Medical Society endorses and gives active support to all areas of professional education. The question arises, however, as to what part this Society shall continue to play in this field. That is one of the problems the new Format Committee will try to solve.

This Committee has been thoughtfully designed. The president-elect shall be chairman. One member selected by each of the four component societies where meetings are regularly held (Reno, Shawnee, Sedgwick and Wyandotte) plus two from other societies appointed by the president, comprise this seven man committee. Terms are staggered to insure continuity. The names of the present committee were published in the JOURNAL with the other committees last month and are available through the executive office if desired.

This committee has already held one meeting and is suggesting a series of changes to the Council for adoption. Among them are recommendations for an entire day devoted to specialty meetings and another day for athletic and social events. The numerous additional ideas will be described as soon as the Council acts to make them official.

In the meantime Doctors Glenn R. Peters, presi-

dent, and F. E. Wrightman, chairman of the Format Committee not merely welcome, but most urgently request suggestions from any member for ways to improve the Annual Sessions. The problem is one of reduced interest in this event whether the program consists of scientific or socioeconomic subjects and is apparently the same regardless of where the meeting is held.

The solution will be found when the Society presents a program the members wish to hear. This then is a request for all members to express their opinion upon what they would like the Annual Session to be. Each suggestion will be given to the Committee. It is hoped many might be received.

Kansas Hospital Council

The 1959 House of Delegates approved a three year effort of the Committee on Hospitals and adopted plans for creating a Kansas Voluntary Council on Professional Standards for Hospitals. It will next be presented to the Kansas Hospital Association and then to each hospital in the state.

The full text of this project was published in the April issue of this JOURNAL and might be worthy of review. This will not interfere with the work of the Joint Commission on Accreditation of Hospitals, but grew out of requests from numerous smaller Kansas hospitals which because of their size are ineligible for review by the national body. The Kansas suggestions are necessarily somewhat relaxed from those designed for hospitals with staff members specializing in various fields, but are regulations that will benefit the patient and are practical of enforcement even for the smallest hospital.

This involves voluntary participation by the hospital and its professional staff, but since its purpose is "to establish minimum and optimum professional standards and criteria for hospitals of the state" through which it may be assured ". . . that all patients admitted to the hospital or treated in the out-patient department receive the best possible care . . ." it is hoped that all hospitals will participate.

The suggested program recommends that a hospital have at least six staff members and that the smaller hospitals, where one or two physicians practice, unite with neighboring hospitals to form combined staffs. Qualifications for active staff membership consist of requiring that the applicant shall hold a valid Kansas license to practice medicine and surgery, that he shall be a member of a local medical society, and, among other things, that he shall serve a six months probationary period before appointment. Courtesy staff privileges shall be limited to those professional services the applicant's Kansas license authorizes him to perform but where this is other than to practice medicine and surgery, an active staff member shall be responsible for the patient's admission and shall assume obligation over the patient's care.

Additional regulations cover the various professional services, as for example, that the assistance of an active staff member shall be required in the performance of all major surgery, that tissues shall be examined by a competent pathologist, that consultation shall be required in various named obstetrical and gynecological procedures, and that records shall conform to specified standards.

In the near future this Council will be established and hospitals will be invited to voluntarily place themselves under these minimum standards. The decision to do so will, of course, arise with the professional staff so it is hoped physicians will early become familiar with the provisions here contained.

New Doctors Licensed in 1958

Almost 8,000 new physicians were licensed to practice medicine in the United States during 1958, it was reported by the American Medical Association's Council on Medical Education and Hospitals.

In its 57th annual report the council said that this marks the sixth consecutive year in which more than 7,000 new physicians were licensed. Of the 7,809 new doctors, 6,155 were licensed through written examinations and 1,654 by endorsement of credentials. During the period, there were approximately 3,700 physician deaths reported to the A.M.A., which reduces the over-all gain in the doctor population to 4,109.

In all, 15,240 licenses to practice medicine were issued in 1958. Written examinations accounted for 7,315 licenses and 7,925 were given through reciprocity and endorsement of credentials.

Of these, California issued the greatest number—2,205. New York was next with 1,584. Illinois, Ohio, Pennsylvania, and Texas each registered more than 500 doctors. Nine states—Alaska, Delaware, Idaho, Montana, Nevada, North and South Dakota, Vermont, and Wyoming—issued less than 50 licenses during the year. Among the territories and possessions, Puerto Rico licensed 107, Hawaii 44, Canal Zone 6, Guam and the Virgin Islands two each.

Tuberculosis Test

A simple blood test looks promising and practical to detect active tuberculosis, a team of researchers report in the *American Review of Tuberculosis and Pulmonary Disease*. The test checks whether you have antibodies in your blood against TB germs. It's proving pretty accurate in detecting the disease, write Dr. Guy P. Youmans, Robert C. Parlett, and Caroline Rehr of Northwestern University, and Dr. William Lester of Hinsdale, Ill.

Economics in Medicine

Invest Your Money Wisely

FLOYD F. WEHRENBERG, *Kansas City, Missouri*

Having given careful attention to your income, your business and other deductible expenses, your taxes and insurance, and your personal living expenses, you should have left a maximum net gain. It is with this money that you prepare for the future. What you do with it will mean a great deal to you and your family.

Before considering investments you will want to be certain that you have in cash (checking or savings accounts, or government bonds) enough to cover approximately ninety days' current expenses.

Your first investment should be in your practice since this will produce the best rate of return you can get. You should have a good layout, an attractive office and modern equipment before you spend money on other investments.

Second, you will want to see that your home requirements have been met. After this, put your money to work for you; don't just let it accumulate!

Study the following table which will show you how $500 invested annually will grow, assuming dividends or interest are reinvested.

No. Years	*2%*	*3%*	*4%*	*5%*	*6%*
5	$ 2,602	$ 2,654	$ 2,708	$ 2,762	$ 2,818
10	5,474	5,731	6,003	6,288	6,590
15	8,646	9,299	10,011	10,789	11,637
20	12,148	13,435	14,889	16,532	18,392
25	16,015	18,229	20,822	23,863	27,432
30	20,284	23,787	28,042	33,219	39,529
35	24,997	30,231	36,826	45,160	55,717

If you saved $500 annually, at the end of thirty-five years you would have accumulated $17,500. If you had invested this money, along with dividends and interest, at 5 per cent you would have earned $45,160. This is just one example of the value of a wise investment.

In order to protect the purchasing power of your dollar equally in times of inflation or deflation, your portfolio should be balanced between fixed or guaranteed dollar investments, and flexible or variable contracts.

Dollar contracts include U. S. bonds, state and municipal bonds, savings and building and loan accounts, first mortgages, and high grade corporate bonds. These contracts guarantee a certain interest. For the doctor who finds it difficult to save money, they are a forced investment plan.

Flexible contracts include common stocks, investment fund shares, farms, and rental properties. The value of investment funds lies in the diversification of ownership, the dollar averaging of cost over a period of several years, and the expert supervision you receive. There are very few doctors who have the time to follow the stock market closely enough to select their own investments wisely. Most prefer to buy investment fund shares since, even with the loading charge paid for the supervision, they find it much easier and more profitable in the long run.

Farm and rental properties should be under the direction of farm and real estate management firms to assure you a good return. Here again few doctors have the time to direct these operations.

More speculative investing should be limited strictly to "surplus" funds if a doctor wants to protect his future. Oil wells, businesses, orchards, etc., require real "know how" and close supervision. Unless the doctor is in a position to supply these, he may find that his money fails to bring the anticipated return.

In planning and building your estate, remember that estate taxes can be costly. You will want to be sure you qualify for the marital deduction. Unless you see that your estate is properly set up, your wife may discover after your death that in spite of your earnings, your investments and your plans, she is not going to receive the benefits she expected. Uncle Sam will get his legal share; be certain you receive yours! Consult your attorney for maximum utilization of Estate Planning Techniques.

The advice of a reliable and competent investment counselor can be invaluable to you. Select your counselor carefully, then let him guide you.

Mr. Wehrenberg is Missouri-Kansas manager, Professional Management Mid-West, 4010 Washington Street, Kansas City, Missouri.

Cancer Progress

Alive today are 800,000 Americans who have been saved from cancer. Modern methods are saving one in every three persons who develop cancer, whereas 30 years ago only one in 10 escaped death from the disease, Dr. John R. Heller, director of the National Cancer Institute, told the 1958 National Crusade Meeting of the American Cancer Society.

BOOK REVIEWS

Reticular Formation of the Brain. Henry Ford Hospital International Symposium. P. 758. Boston, Little, Brown and Company, 1958. Price $16.00, 766 pages.

This most remarkable compendium of current knowledge of the reticular formation of the brain gleaned from the leading research laboratories throughout the world does serve as a reliable standard of information in this field which is so rapidly developing in new data. Extremely important facts relating to the anatomy, the ascending and descending connections, the neurohumoral aspects and even the contributions to learning of this reticular formation are discussed in a most lucid and orderly manner. For anyone interested in the developing field of neurophysiology this book is a "must."—*J.A.S.*

Practical Dermatology. Edited by George M. Lewis. Published by W. B. Saunders Publishing Company. 363 pages. 121 illustrations. Price $8.00.

Dr. Lewis states in his preface that he has attempted to be as concise as posible and to illustrate profusely. This he has accomplished. The material is presented succinctly in a straight-forward manner. The pictures are as good as this reviewer has ever seen.

Space seems to have been considered throughout; to present as much material in as little space and with as few words as possible. This feature makes the inclusion of a chapter on diagnostic methods—in which, among other things, the taking of a history is described—a bit incongruous.

The inclusion of a chapter on the skin as related to other organs is most worthwhile and is space well spent. Other subjects are touched, basic sciences and dermatologic formulary, but because of their brevity they add little to the book. Aside from this, the clinical descriptions and therapy remain the basis of the book. They are concise, to the point, and with the splendid pictures are easy to follow.—*C.M.L.*

The Management of Fractures and Dislocations. An Atlas in two volumes. By Anthony F. DePalma. Volume 1, 470 pages. Volume 2, 471 pages. 1,927 Illustrations. Price $35.00. Published by W. B. Saunders Company.

These two volumes are devoted to the treatment of fractures and dislocations. As an Atlas and textbook, it is written for quick reference and has an abundance of well illustrated and accurate plates, describing the pathology and methods of treatment of fractures and dislocations.

Volume one contains a concise and basic introduction to the physiology of fractures, to the underlying pathology, to the management of fractures, and finally to the complications of fractures. The remainder of the first volume concerns fractures and dislocations of the neck, back, pelvis, thoracic cage, and upper extremities.

Volume two completes the regional survey of fractures and dislocations and their treatment. In each area of the body the injuries are first described with some general remarks, and these are followed by a discussion of the fractures. The roentgenographic appearance is outlined, and finally the methods of reduction and post-reduction care are enumerated. Rarely are the fractures or dislocations identified by their eponyms. It is felt that this lack of eponyms detracts from some of the historical value of the various fractures and rightfully has some place in the nomenclature. There is also scant information throughout these volumes of the relative incidence of the divers fractures. Likewise the hazards and pitfalls of treatment in various forms is frequently rather sketchy.

DePalma prefaces his book with the observation that some of the treatment may seem dogmatic. Perhaps dogma is the prerogative of experienced authors and is likewise a tool for teaching, but unfortunately, its use in this text tends to omit other acceptable forms of treatment of fractures and may at times be somewhat misleading to the reader.

For the medical student or physician who wishes orientation or a means of reviewing fractures and dislocations, these two volumes are recommended as brief, well illustrated references.—*H.G.K.*

BOOKS RECEIVED

Books received by the JOURNAL OF THE KANSAS MEDICAL SOCIETY *are acknowledged in this column. Selections will be made for more extensive review in the interests of readers as space permits. Members of the Society, from time to time, review these books and their critique is presented in this section. The reviewers receive the complimentary book from the publisher for their efforts.*

FUNDAMENTALS OF OTOLARYNGOLOGY—Third Edition—A Textbook of Ear, Nose and Throat Diseases—Lawrence R. Boies, M.D., Professor of Otolaryngology, Chairman, Department of Otolaryngology, University of Minnesota Medical School. W. B. Saunders Company, Philadelphia, 1959. 510 pages, $8.00.

NAVY SURGEON—Rear Admiral Herbert Lamont Pugh (MC, Ret.) J. B. Lippincott Company, Philadelphia, 1959. 459 pages, $5.00.

HEARING—A Handbook for Laymen—Norton Canfield, M.D., Associate Clinical Professor of Otolaryngology, Yale University School of Medicine; President of the Audiology Foundation. Doubleday & Company, Inc., Garden City, New York, 1959. 214 pages, $3.50.

Highlights of A.M.A. Meeting

Summary of the Actions of the House of Delegates

The report of the A.M.A. Commission on Medical Care Plans, relations between medicine and osteopathy, the report of the Committee on Preparation for General Practice and the issue of compulsory Social Security coverage for self-employed physicians were among the major subjects which brought important policy actions by the House of Delegates at the American Medical Association's 108th Annual meeting held June 8-12 in Atlantic City.

Another highlight of the meeting was the appearance of President Dwight D. Eisenhower, who addressed an over-flow audience of more than 5,000 at the Tuesday night inauguration of Dr. Louis M. Orr of Orlando, Florida, as the 113th president of the A.M.A. It marked the first time that a President of the United States had addressed an A.M.A. annual or clinical meeting.

Dr. E. Vincent Askey of Los Angeles, speaker of the House of Delegates since 1955, was named president-elect for the coming year. Dr. Askey will succeed Dr. Orr as president at the association's annual meeting in June, 1960, in Miami Beach.

The 1959 Distinguished Service Award of the American Medical Association was voted to Dr. Michael E. De Bakey of Houston, Texas, chairman of the department of surgery at Baylor University College of Medicine, for his outstanding contributions in the field of cardiovascular surgery. Dr. De Bakey received the award at the Tuesday night inaugural ceremony.

Total registration was more than 30,000, including 13,000 physicians.

Eisenhower Address

President Eisenhower, speaking at the inaugural ceremony in the ballroom of Convention Hall, warned that inflation posed the greatest danger to the traditional, free enterprise practice of medicine. The cost of inflation, he said, "is not paid in dollars alone but in increasingly stagnated progress, lost opportunities, and eventually, if unchecked, in lost freedoms for the doctor and the patient." Mr. Eisenhower also expressed gratification at learning of A.M.A. leadership in the program to meet the health care needs of the aged.

EDITOR'S NOTE: This is a summary of the 108th Annual Meeting of the House of Delegates of the American Medical Association held in Atlantic City, N. J., last month. It was prepared by the A.M.A.

Commission on Medical Care Plans

The House of Delegates received Part I of the report of the Commission on Medical Care Plans as information only and then acted upon the Commission recommendations item by item. The House adopted 36 of the recommendations without change, but reworded three which relate to miscellaneous and unclassified plans. The changed recommendations now read as follows:

B-4. "In an effort to decrease, or at least to prevent an increase, in the over-all cost of health care, study should be given to the removal of the requirement of hospital admission as the only condition under which payment of certain benefits will be made."

B-6. "Medical care plans should be encouraged to increase their efforts to provide health education and information concerning the coverage of their subscribers."

B-16. "The American Medical Association believes that free choice of physician is the right of every individual and one which he should be free to exercise as he chooses. Each individual should be accorded the privilege to select and change his physician at will or to select his preferred system of medical care and the American Medical Association vigorously supports the right of the individual to choose between these alternatives."

In connection with free choice of physician, the House also requested the Board of Trustees to transmit to all constituent medical associations the "far-reaching significance" of Recommendation *A-7,* which says:

" 'Free choice of physician' is an important factor in the provision of good medical care. In order that the principle of 'free choice of physician' be maintained and be fully implemented, the medical profession should discharge more vigorously its self-imposed responsibility for assuring the competency of physicians' services and their provision at a cost which people can afford."

The House also strongly endorsed Recommendation *B-11,* which declares that "Those who receive medical care benefits as a result of collective bargaining should have the widest possible choice from among medical care plans for the provision of such care."

Many of the Commission recommendations urged increased activity by state and county medical societies and the American Medical Association in such fields

as continuing study and liaison, closer attention to legal and legislative factors, and the development of guides for the relationship between the medical profession and the various types of third parties. To carry out three of the recommendations involving A.M.A. activities, the House also approved a seven-point program which it requested the Board of Trustees to transmit to the Division of Socioeconomic Activities for immediate attention.

Medicine and Osteopathy

In considering a special report of the Judicial Council on the subject of osteopathy, the House adopted the following policy statement regarding interprofessional relations:

"1. All voluntary professional associations between doctors of medicine and those who practice a system of healing not based on scientific principles are unethical.

"2. Enactment of medical practice acts requiring all who practice as physicians and surgeons to meet the same qualifications, take the same examinations and graduate from schools approved by the same agency should be encouraged by the constituent associations.

"3. It shall not be considered contrary to the Principles of Medical Ethics for doctors of medicine to teach students in an osteopathic college which is in the process of being converted into an approved medical school under the supervision of the A.M.A. Council on Medical Education and Hospitals.

"4. A liaison committee be appointed by the Board of Trustees of the American Medical Association to meet with representatives of the American Osteopathic Association, if mutually agreeable, to consider problems of common concern including interprofessional relationships on a national level."

In another action concerning osteopathy, the House recommended that the American Medical Assocation representatives on the Joint Commission Accreditation of Hospitals suggest to the Joint Commission that they inspect upon request and consider for accreditation without prejudice those hospitals required by law to admit osteopathic physicians to their staff.

Preparation for General Practice

The House approved and commended the final report of the Committee on Preparation for General Practice, which proposes a new two-year internship program for medical school graduates planning to become family physicians. To avoid unnecessary confusion, the House deleted only one sentence which read: "Indeed, the committee believes that the one year internship actually encourages inadequate preparation for general practice." The Committee on Preparation for General Practice included representatives from the A.M.A. Council on Medical Education and Hospitals, the American Academy of General Practice and the Association of American Medical Colleges.

The suggested program would include a basic minimum of 18 months hospital training in the diagnostic, therapeutic, psychiatric, preventive and rehabilitative aspects of medicine and pediatrics in a very broad sense, including care of the newborn. A physician then could elect to spend the remaining six months for additional training in other segments of the program. The committee stated, however, that participants who plan to practice obstetrics would be expected to spend at least four months of the elective period in obstetrical training.

The report declared that "the graduate program of two years in preparation for family practice should be planned and implemented as a unified whole" with a maximum continuity of assignment in specific services. The program also calls for adequate experience in outpatient care and emergency room service.

Social Security

In considering five resolutions on the subject of compulsory Social Security coverage for self-employed physicians, the House disapproved of four and adopted one reaffirming its opposition to the compulsory inclusion of physicians. In so doing, the delegates expressed concern over the possible effects that a change of policy might have on the Association's entire legislative program, particularly with respect to the Forand Bill.

The House also recognized "the apparent growing demand by physicians for economic security" and requested the Board of Trustees to investigate the possibilities of developing group insurance and retirement plans which could be made available to Association members. It accepted a reference committee suggestion "that the American Medical Association continue and expand its educational program to inform its members of the economic, social and moral advantages of economic security obtained within the framework of our free enterprise system rather than through the mechanisms of governmental Social Security."

Miscellaneous Actions

In dealing with a wide variety of other subjects, the House also: Urged all physicians to participate more fully in community activities and *socioeconomic matters* in their own communities but agreed that no change should be made at this time in Article II of the Constitution, which states Association objectives;

Approved in principle the aims and objectives of the President's Council on *Youth Fitness* and the Citizens Advisory Committee on the Fitness of American Youth;

Accepted a Board of Trustees recommendation that the *1962 Annual Meeting* be held in Chicago;

Expressed heartfelt thanks to the Committee on *Amphetamines* and Athletes, which has completed its assignment;

Requested the Board of Trustees to study the problems and possibilities of establishing an A.M.A.-sponsored *medical scholarship* and/or loan program;

Approved the inclusion of *Today's Health* as a benefit of dues-paying membership and urged members to make it available to their patients;

Recommended that state medical societies, where advisable, initiate legislative efforts to eliminate *cancer quackery;*

Received a progress report indicating "phenomenal progress" in the field of health insurance coverage for *the aged* since the Minneapolis meeting last December;

Gave a rising vote of thanks to *Dr. Joseph D. McCarthy,* who finished his term as chairman of the Council on Medical Service;

Reaffirmed its full support of the Educational Council for *Foreign Medical Graduates;*

Endorsed the purposes outlined in the initial report of the *Medical Disciplinary Committee;*

Urged every A.M.A. member to give a substantial gift to the *medical schools* through the American Medical Education Foundation; and

Expressed appreciation for the outstanding *disaster medicine* program presented by the United States Army Medical Service on June 6, 1959, in Atlantic City.

Opening Session

At the Monday opening session Dr. Gunnar Gundersen of La Crosse, Wis., retiring A.M.A. president, stressed the personal responsibility of every physician to keep abreast of medical advancements and to deliver "1959 medicine." Dr. Orr, then president-elect, called for concerted effort and medical leadership in four areas—the costs of medical care, recruitment of dedicated medical students, basic research and health care of the aged. Dr. Carl V. Moore, Busch professor of medicine at Washington University, St. Louis, was presented with the eighth Goldberger Award in clinical nutrition. Smith, Kline and French Laboratories of Philadelphia received a special A.M.A. award for its sponsorship of color medical television over the past ten years.

Inaugural Ceremony

Dr. Orr, in his Tuesday night inaugural address, affirmed his belief in the basic principles of medicine, democracy and faith under which America's physicians live. He pointed out that freedom must continually be fought for by men and women who are willing to stand up and be counted. Dr. Leonard Larson of Bismarck, N. D., A.M.A. Board Chairman, administered the oath of office to Dr. Orr, and the latter presented the Distinguished Service Award to Dr. De Bakey. The Fort Dix Band Chorus presented the musical program.

Election of Officers

In addition to Dr. Askey, the new president-elect, the following officers were selected at the Thursday session:

Vice president, Dr. James Stanley Kenney of New York City; speaker of the House of Delegates, Dr. Norman A. Welch of Boston, and vice speaker, Dr. Milford O. Rouse of Dallas, Tex.

Dr. R. B. Robins of Camden, Ark., and Dr. Hugh H. Hussey, Jr., of Washington, D. C., were re-elected for five year terms on the Board of Trustees. Also elected to the Board, for the first time, was Dr. Percy E. Hopkins of Chicago.

Dr. J. M. Hutcheson of Richmond, Va., was re-elected to the Judicial Council. Re-elected to the Council on Medical Education and Hospitals were Dr. Charles T. Stone, Sr., of Galveston, Tex., and Dr. W. Andrew Bunten of Cheyenne, Wyo.

Dr. Willard Wright of Williston, N. D., was elected, and Dr. J. Lafe Ludwig of Los Angeles was re-elected to the Council on Medical Service. Dr. William Hyland of Grand Rapids, Mich., was re-elected to the Council on Constitution and Bylaws.

Legal Change

Let's abolish the laws calling for compulsory premarital blood tests for syphilis, write A. W. Hedrich, Sc.D. and Charlotte Silverman, M.D. of the Maryland State Department of Health. They list their reasons in the *Journal of Public Health:* Syphilis has declined greatly, and just as much in states without the compulsory tests as in states having those laws; the disease now can be easily controlled; false positive tests do occur and cause great damage and heartbreak; the tests detect very few infectious cases and so are expensive for the value they do have.

Highway Hazard

Emotionally upset? Been taking sedatives, tranquillizers, cold tablets? Then don't drive a car, advises a new A.M.A. pamphlet, *Are You Fit to Drive?* You can be dangerous, too, if you believe the other fellow is always wrong, if you're sleepy, have bad vision, or certain nerve and heart disorders which may bring on convulsions or black-outs. Drinking is taboo —naturally.

THE MONTH IN WASHINGTON

Editor's Note. The following summary of Washington news was prepared by the Washington office of the A.M.A. for distribution to state and regional medical journals.

Last Months Race

Congress went into the final months of this session with a heavy workload of appropriation bills and foreign aid legislation to be acted upon before adjournment.

Congress must act upon the appropriation bills before adjournment to provide money for operation of the federal government during the 1960 fiscal year. Foreign-aid legislation also is generally put in the "must" category now.

With so much "must" legislation requiring action and Congress hoping to adjourn by late August or maybe earlier, many bills of varying importance will be left for further consideration next year.

An upsurge in the national economy strengthened the position of the Administration and economy-minded members of the House and Senate in their opposition to big-spending bills. Supporters of a Senate-approved $465 million airport bill conceded in advance that a House-Senate conference committee would approve a figure closer to the $297 million version which the House passed.

Substantial gains in industrial production, corporate profits, employment and other key economic factors raised Administration hopes for only a small deficit, if not a balanced budget, in the fiscal year 1960 which began July 1. There also was some talk in influential quarters of a possible tax cut next year. But at this stage, it was highly speculative. And it appeared most likely that if there is one, it will be small.

During the first five months of this session, Congress completed action on only two appropriation bills. They provided funds for operation of the Treasury and Post Office Department in fiscal 1960, and additional funds for various government activities during 1959.

Early in June, the House approved, 393 to 3, a $38,848,339,000 Defense Department appropriation which included $88.8 million for care of certain dependents of military personnel in civilian hospitals. In recommending the Medicare appropriation, the House Appropriations Committee commended the Defense Department "for its response to the intent of Congress . . . that dependents of military personnel have the benefit of prompt and adequate medical treatment at all times wherever they may be."

This contrasted with the Committee's criticism about two months ago. The Committee then expressed concern at what it termed "the high costs of care for military personnel and their dependents in civilian hospitals and the high fees allowed in the program."

Medicare

In another *Medicare* development, the Surgeon General of the Army ruled that a patient under the program who has suspected or proven malignancy is acutely ill and qualifies for care. The government will pay for urgently required treatment in such cases when certified by the attending physician.

But it was made clear that payment would be based "solely on the medical requirement for immediate hospitalization." Qualifications of urgency can not be based on mental anguish, emotional attitudes or socioeconomic factors.

The Defense Department rejected two proposals of the Florida Medical Association for changes in the Medicare program. The Florida Medical Association proposed that a health insurance program be provided for dependents of military personnel or that control of the Medicare program be transferred to the Department of Health, Education and Welfare.

Dr. Frank B. Berry, Assistant Secretary of Defense for Health and Medicine, said the present program could be handled best by the military service because military dependents "are a highly transient population."

Dr. F. J. L. Blasingame, Executive Vice President of the American Medical Association, suggested to the House Subcommittee on Administration of the Social Security Laws that it consider the advisability of a single Public Assistance medical program at the prerogative of individual states. There are now four such programs covering the blind, the aged, dependent children, and the permanently and totally disabled.

In a letter to Rep. Burr P. Harrison (D., Va.) Chairman of the Subcommittee, Dr. Blasingame also suggested consideration of: Whether the medical staff of the Bureau of Public Assistance is now sufficient to provide adequate counselling to states on their individual programs, and Whether "sufficient liaison has maintained with the various professional organizations actually providing medical care.

There were six physicians among the 56 persons who signed the Declaration of Independence.

BLUE SHIELD

Close Relationship Between Plans and Physicians Important

"The future of Blue Shield Plans depends upon the maintenance of a close liaison between the Plans and the medical profession. Blue Cross and Blue Shield cannot exist without the medical profession, and in our present form, it does not seem likely to me that medicine can long exist without some organ such as Blue Cross and Blue Shield."

These were the words of Dr. J. M. Rumsey, a member of the A.M.A. Council on Medical and Related Facilities, at a meeting of District IX Blue Cross-Blue Shield hospital and professional regulations representatives in Phoenix recently. Dr. Rumsey served on a committee of the California Medical Society to develop their relative value schedule which has received nationwide attention. He told delegates at the meeting that "Plans should apply a pioneering spirit in meeting the challenge of providing health care coverage for the aged.

"When we turn to the Federal Government in this area," he said, "we are running away from the problem. Instead, we should capture the pioneering spirit and be willing to assume some risks ourselves. This was the foundation on which Blue Cross and Blue Shield were built. When they began, many said it could not be done. However, we pursued this principle and with the strong backing from the hospitals and doctors—Blue Cross and Blue Shield have been mighty forces for good in the distribution of medical care."

Dr. Rumsey went on to urge that in meeting the problem of devising effective voluntary means of providing coverage for the aged, he felt that new and perhaps revolutionary approaches would have to be taken at this time in order to devise new methods of financing programs of health care for senior citizens.

Kansas Emphasizing Non-Group Enrollment

As a part of its special emphasis on non-group membership during 1959, Kansas Blue Cross-Blue Shield, on June 1, launched a new enrollment program for the summer months. Sixteen members of the Kansas public school system have been engaged to make a special non-group enrollment effort in their local areas during June, July and August.

These 16 Kansas teachers are familiar with their own communities where they will be working during the summer and will also be aware of the need for prepaid hospital-medical-surgical care in their area.

In order that you may know the name of the teacher-representative who will be working in or near your town this summer we are listing their names and home addresses here:

Darrell D. Bentz, 2086 Wesley, Salina; Robert D. Blazer, 2106 Elm, Hays; Bennett E. Brower, 5443 West 17th, Topeka; D. Eugene Enos, 325 Vermont, Holton; Ralph Loyd, 631 S. Cherry, Ottawa; Walter Saathoff, 1504 Jenkins, Marysville; George Walters, 302 N. Norton, Norton; Robert A. Johnson, 331 Rural, Emporia.

Jerry Aistrup, 1719 Maris, Winfield; John E. Bolan, 3706 West 18th, Wichita; Robert Lee Cox, 921 West 9th, Chanute; David Huffman, 305 E. Hudson, Pittsburg; Howard Keith, 1621 East Avenue, Baxter Springs; W. H. Nichols, 1302 Casado, Wichita; Harold Rains, 1004 South National, Fort Scott; and Lloyd L. Wiseman, 15 Meadowlark Lane, Hutchinson.

Food Fads

Probably 10 million Americans are following the advice of food quacks or faddists, and many are gambling with their health for just that reason, warns Dr. David B. Allman, president of the A.M.A. Many people with undiagnosed ailments seize on the promised remedy of the food faddist rather than getting good medical attention, he told the National Food Conference. One way to recognize the food quack is to remember that he "has something to sell," adds Dr. Fredrick J. Stare, Harvard nutritionist. "It may be a book, a magazine, a series of health talks, a special food preparation. Whatever it is, he's out to line his pocket with *your* money."

Fat Makes Fat

Scientists report the surprising discovery that fatty tissue produces more fat, rather than simply being stored in the body as an inert padding. This happens, at least in the laboratory when tissues are kept alive under glass and are fed chemicals which make up virtually all kinds of cells. Fat cells go to work to make more fat at a prodigious rate, reports the American Cancer Society. The finding may have implications in devising reducing diets or in understanding diseases in which fattiness seems to make people more suseptible.

The crew of the atomic submarine, *Nautilus*, received less radiation dosage at sea than the average American does in the course of daily life.—*Science News Letter*

Annual Meeting

Officers Elected and Specialty Group Sessions

The 100th (Centennial) annual meeting of the Kansas Medical Society, held at Topeka, May 4-6, was attended by 403 members of the Society. Also registered for the session or affiliate meetings were 2,000 guests (including the Hall of Health Exhibit), 188 members of the Kansas Medical Assistants' Society, 158 members of the Woman's Auxiliary to the Kansas Medical Society, and 85 members of the Kansas Society of Medical Technologists.

The program announced in the April issue of the JOURNAL was presented. The annual banquet was highlighted by the administration of the oath of office as president for 1959-1960 to Dr. Glenn R. Peters, Kansas City, with Dr. Thomas P. Butcher, Emporia, presiding. Entertainment was furnished by "Doc" and Kitty from the TV Program "Gunsmoke."

The first meeting of the House of Delegates followed a breakfast at the Jayhawk Hotel on Monday morning, May 4. The second session was held on Wednesday, May 6. Minutes of the meetings are published in this issue of the JOURNAL.

Officers for 1959-1960

President ..... Dr. Glenn R. Peters, Kansas City
President-Elect ..... Dr. F. E. Wrightman, Sabetha
Immediate Past President .. Dr. Thomas P. Butcher, Emporia
First Vice-President ..... Dr. H. M. Glover, Newton
Second Vice-President ..... Dr. N. L. Francis, Wichita
Constitutional Secretary Dr. George E. Burket, Jr., Kingman
Treasurer ..... Dr. J. L. Lattimore, Topeka
A.M.A. Delegate, 1959-1960 Dr. George F. Gsell, Wichita
A.M.A. Alternate, 1959-1960 ..... Dr. L. R. Pyle, Topeka
Chairman of Editorial Board Dr. Orville R. Clark, Topeka

Councilors for 1959-1960

1. Dr. Emerson D. Yoder, Denton, term expiring 1960
2. Dr. Joseph W. Manley, Kansas City, 1961
3. Dr. George R. Maser, Mission, 1960
4. Dr. Dick B. McKee, Pittsburg, 1961
5. Dr. Ralph G. Ball, Manhattan, 1960
6. Dr. James A. McClure, Topeka, 1962
7. Dr. J. L. Morgan, Emporia, 1962
8. Dr. James E. Hill, Arkansas City, 1960
9. Dr. L. S. Nelson, Jr., Salina, 1960
10. Dr. John N. Blank, Hutchinson, 1962
11. Dr. William J. Reals, Wichita, 1961
12. Dr. Albert C. Hatcher, Wellington, 1962
13. Dr. Henry S. O'Donnell, Ellsworth, 1961
14. Dr. Clair J. Cavanaugh, Great Bend, 1961
15. Dr. Lyle G. Glenn, Protection, 1961
16. Dr. Edward F. Steichen, Lenora, 1962
17. Dr. H. P. Palmer, Scott City, 1960

Editorial Board

Dr. Orville R. Clark, chairman of the Editorial Board and Editor of the JOURNAL, was reappointed to both positions at a meeting of the Council held in Topeka on May 4-6. Dr. John A. Segerson was also reappointed to a three-year term on the Board. Serving with them are Dr. David E. Gray, whose term will expire in 1960, Dr. Dwight Lawson, whose term will expire also in 1960. All are Topeka physicians.

E.E.N.T. Section

Elected to serve as officers of the E.E.N.T. Section of the Kansas Medical Society for the coming year, at a meeting held during the last Annual Meeting, are: president, Dr. James E. Bresette, Kansas City, and vice-president, Dr. Joseph A. Budetti, Wichita. Their next annual meeting will be held in conjunction with the State meeting at Hutchinson.

Kansas Urological Society

The following doctors were renamed officers of the Kansas Urological Society at their last annual meeting: Dr. Pratt Irby, Fort Scott, president; and Dr. Walter Mau, Topeka, secretary-treasurer.

Kansas Chapter of the American College of Surgeons

At their last annual meeting the members of the Kansas Chapter of the American College of Surgeons elected to the office of the presidency, Dr. Marion F. Russell of Great Bend (deceased). They also elected Dr. Glen E. Kassebaum, El Dorado, vice-president; and Dr. Robert W. Myers, Newton, secretary-treasurer. Their next annual meeting will be held in El Dorado on October 25.

Blue Shield

Dr. Edward J. Ryan, Emporia, was re-elected president of the Kansas Blue Shield at a meeting held during the State Annual Meeting. Other officers re-elected are: Dr. James B. Fisher, Wichita, first vice-president; Dr. E. Burke Scagnelli, Dodge City, second vice-president; and Dr. Lucien R. Pyle, Topeka, secretary-treasurer. The next annual meeting of this service will be held the Sunday preceding the Society's annual meeting in the same town.

Kansas District Branch of the American Psychiatric Association

Dr. Howard V. Bair, Parsons, took office as president of the Kansas District Branch of the American

Psychiatric Association during their last annual meeting. Dr. John Grimshaw, Topeka, was chosen president-elect of the Branch. Dr. William H. Robinson, III, Topeka, was elected secretary-treasurer. The next meeting place of the Branch will be arranged later.

Kansas Chapter of the American Academy of General Practice

Dr. Cloyce A. Newman, Topeka, was named president of the Kansas Chapter of the American Academy of General Practice, at the annual meeting of the group. Dr. J. Allen Howell, Wellington, was chosen to serve as president-elect, and the following other officers were named: Dr. G. P. Neighbor, Kansas City, vice-president; Dr. N. H. Overholser, El Dorado, secretary.

Kansas Medical Assistants Society

The 19th annual meeting of the Kansas Medical Assistants Society was held in Topeka, May 4-6. At its business session the group installed Ruth M. Sieverling, Wichita, as president. She will be assisted during the year in her office by Marge Slaymaker, Newton, president-elect; Virginia Brand, Lawrence, vice-president; Norma Pryor, Wichita, secretary; Viva Ann Tipton, Topeka, treasurer. Their next annual meeting will be held in Hutchinson, two days before the Kansas Medical Society's annual meeting.

Kansas Pediatric Society

Officers for the 1959-1960 year were chosen by the Kansas Pediatric Society at a meeting held recently. The following were named: Dr. Hilbert Jubelt, Manhattan, president; Dr. Thomas Hurst, Wichita, vice-president; Dr. William H. Crouch, Topeka, secretary-treasurer. The next meeting of the Kansas Pediatric Society will be held on the first Saturday after Labor Day at Emporia, in the Hotel Broadview.

Woman's Auxiliary to the Kansas Medical Society

Mrs. L. G. Graves, St. John, was installed as president of the Woman's Auxiliary to the Kansas Medical Society at the close of the organization's annual convention in Topeka, May 4-6. Other officers elected at that session are: president-elect, Mrs. Chester Young, Kansas City; first vice-president, Mrs. L. S. Nelson, Salina; second vice-president, Mrs. Virgil P. Brown, Sabetha; third vice-president, Mrs. William Brown, Pittsburg; fourth vice-president, Mrs. D. L. Richardson, Minneola; treasurer, Mrs. Lyle G. Glenn, Protection; recording secretary, Mrs. H. L. Barry, Wichita; and corresponding secretary, Mrs. Ross Jewell, St. John. Their next annual session will be held in conjunction with the Society's at Hutchinson.

Kansas Society of Medical Technologists

Mrs. Mary Nugent, Lawrence, was installed as president of the Kansas Society of Medical Technologists at the close of the organization's 12th annual convention in Topeka on May 6. Other officers are: Gwendolyn Haegert, Topeka, president-elect; Phyllis Snyder, Hutchinson, secretary; and Elizabeth Bentler, Topeka, treasurer. The next annual meeting place has not been selected as yet.

Kansas Society of Anesthesiology

At the recent annual meeting of the Kansas Society of Anesthesiology the following officers were elected: Dr. M. M. Tinterow, Wichita, president; Dr. M. E. Nunemaker, Hutchinson, vice-president; Dr. LaRue W. Owen, Wichita, secretary; and Dr. Gretchen Guernsey, Kansas City, treasurer.

Kansas State Obstetrical Society

Officers for the 1959-60 year were chosen by the Kansas State Obstetrical Society at the annual meeting. The following were named: president, Dr. Robert Sohberg, Jr., McPherson; president-elect, Dr. Henry Foster, Hays; vice-president, Dr. A. H. Baum, Dodge City; secretary-treasurer, Dr. David E. Gray, Topeka.

Kansas Society of Pathologists

The following officers were named by the Kansas Society of Pathologists at their last annual meeting: president, Dr. Leo P. Cawley, Wichita; secretary-treasurer, Dr. William J. Reals, Wichita.

Kansas Orthopedic Club

Dr. John Jarrott, Hutchinson, became president of the Kansas Orthopedic Club as the result of an election held at the group's last annual meeting. Dr. Henry O. Marsh, Wichita, was named secretary-treasurer. Their next annual meeting will be held in conjunction with the Society's state meeting.

Kansas Members of American College of Physicians

The Governor for Kansas to the American College of Physicians was chosen at the annual meeting of the Kansas members of that society. He was Dr. Fred J. McEwen, Wichita. Dr. William C. Menninger, Topeka, was elected to the Board of Regents of the American College of Physicians. The next annual meeting of the Kansas members will be held March 4, 1960, at the Town House in Kansas City. Dr. Lee Leger, Kansas City, is chairman of the Arrangements Committee. All members of the medical profession in Kansas and the bordering states are invited to its annual meeting.

Kansas Chapter of the American Society of Clinical Hypnosis

A meeting of the Kansas Chapter of the American Society of Clinical Hypnosis was held recently and Dr. Victor Henry was elected president. Dr. Earl Sheets, D.D.S., was elected vice-president; and Dr. Eldon Rich, was chosen secretary-treasurer. All three are from Newton. As the Chapter is less than a year old, they are still formulating plans for their first annual meeting.

Kansas Wing of the Flying Physicians Of America

Dr. Edward F. Steichen, Lenora, and Dr. Louis Speer, Ottawa, were elected co-chairmen of the Kansas Wing of the Flying Physicians of America. Dr. C. F. Taylor, Norton, was elected secretary-treasurer at the meeting. Their next meeting will be a *fly-in* this month at Manhattan.

Kansas Chapter, American College of Chest Physicians

The following officers were named by the Kansas Chapter of the American College of Chest Physicians at their annual meeting: Dr. John Fulton, Wichita, president; Dr. Roy Lawson, Chanute, president-elect; and Dr. Benjamin Matassarin, Wichita, secretary-treasurer.

Report of the Constitutional Secretary

This is part of the Membership Report of the Kansas Medical Society for 1958.

Dues-Paid Members	1,450
Honorary Members	169
Leave-of-Absence Members	83
In-Service Members	8
Delinquent Members	112
TOTAL	1,822

Blood Clot Dissolver

Harmful blood clots can be quickly destroyed with an extract from a mold. Injected into the bloodstream the extract (an enzyme), seeks out and digests the clot, says the Massachusetts Heart Association, reporting research by Dr. Mario Stefanini of Boston. Given to 25 patients thus far, it promises great value in treating phlebitis, an inflammation of veins, and in dissolving dangerous clots in the brain or heart arteries. This treatment can't reverse the initial damage that clots caused, but could prevent additional harm as the clot remained or grew larger. The extract still is scarce.

People grow tired of being good, advises a psychiatrist. Also, they get a bit lonely.

The Kansas Medical Golf and Skeetshooting Association Awards—1959

Golf

Championship Flight

Winner: Jack Coyle, Coffeyville—Plaque, *Quinton Duffens* and headlight, *Aloe*
2nd Lo Gross: Ed Ashley, Chanute—Trophy and view box, *Grebb X-Ray*
3rd Lo Gross: A. W. Bradford, Kansas City—Barometer, *Eli Lilly*
4th Lo Gross: H. P. Jones, Lawrence—Golf shirt, *Reed Carnick*

1st Lo Net: L. L. Saylor, Topeka—Trophy and 6 golf balls, *Hoffmann La Roche*
2nd Lo Net: W. C. Goodpasture, Wichita—Sunglasses, *Bausch & Lombe*
3rd Lo Net: C. H. Steele, Kansas City—Golf shirt, *Reed Carnick*

First Flight

Winner: M. J. Rucker, Sabetha—Trophy and 3 golf balls, *Schering*
2nd Lo Gross: D. L. Cooper, Ft. Scott—Dopa Kit and Slippers, *Schering*
3rd Lo Gross: W. R. Lentz, Seneca—3 golf balls, *Isle*

1st Lo Net: H. L. Barry, Wichita—Pocket secretary, *Armour*
2nd Lo Net: A. L. Ashmore, Wichita—Thermokeep insulated bag, *Coca-Cola*
3rd Lo Net: R. K. Purves, Wichita—3 golf balls, *Eaton*

Second Flight

Winner: Fred Ford, Topeka—Trophy and 3 golf balls, *Schering*
2nd Lo Gross: H. R. Hodson, Wichita—Flashlight, *Munns*
3rd Lo Gross: M. D. Morris, Topeka—3 golf balls, *Isle*

1st Lo Net: J. H. Holt, Wichita—6 golf balls, *Wyeth*
2nd Lo Net: D. P. Trimble, Emporia—Pocket ashtray, *Ciba*
3rd Lo Net: C. B. Trees, Topeka—3 golf balls, *Eaton*

Third Flight

Winner: L. G. Schwartz, Topeka—Trophy and 3 golf balls, *Schering*
2nd Lo Gross: R. R. Preston, Topeka—Flashlight, *Munns*
3rd Lo Gross: M. R. Knapp—3 golf balls, *Isle*

1st Lo Net: H. Lazar—6 golf balls, *Wyeth*
2nd Lo Net: L. C. Joslin, Harper—Pocket ashtray, *Ciba*
3rd Lo Net: J. O. Kennedy, Topeka—3 golf balls, *Eaton*

Fourth Flight

Winner: M. C. Smith, Arkansas City—Trophy and 3 golf balls, *Schering*
2nd Lo Gross: O. R. Clark, Topeka—6 golf balls, *Washington National Ins.*
3rd Lo Gross: C. R. Magee, Marion—3 golf balls, *Isle*

1st Lo Net: C. C. Underwood, Emporia—Carving set, *Mead Johnson*
2nd Lo Net: J. L. Perkins—6 golf balls, *Washington National Ins.*
3rd Lo Net: W. K. Hobart, Topeka—3 golf balls, *Eaton*

Skeetshooting

Winners

Tied for First: Bill Smiley, Junction City; Shirley Clark, Topeka; W. A. Smiley, Sr., Junction City

Officers of the Association

President: Robert Crawford, Hutchinson
Vice President—Golf: Vic Moorman, Hutchinson
Vice President—Trap: George Gill, Sterling
Secretary-Treasurer: Fred Ford, Topeka

ANNOUNCEMENTS

The American Urological Association is offering an annual award of $1,000 (first prize of $500, second prize $300, and third prize $200) for essays on the result of some clinical or laboratory research in Urology. The Competition is limited to Urologists who have been graduated not more than ten years, and to hospital internes and residents doing research work in Urology. The first prize essay will appear on the program of the meeting of the American Urological Association, to be held at the Palmer House, Chicago, May 1960.

Essays must be submitted before Dec. 1. Physicians interested in entering the competition should contact the Association's executive secretary, William P. Didusch, 1120 North Charles St., Baltimore, Maryland.

A postgraduate course in Gastroenterolgy will be conducted by the American College of Gastroenterology at the Biltmore in Los Angeles, California, September 24-26. The faculty for the course will be drawn from the medical schools in and around Los Angeles.

The course will cover the advances in diagnosis and treatment of gastrointestinal diseases and a comprehensive discussion of diseases of the mouth, esophagus, stomach, pancreas, spleen, liver and gallbladder, colon, and rectum. There will also be a clinical session at the College of Medical Evangelists.

For further information and enrollment write to the American College of Gastroenterology, 33 West 60th St., New York 23, New York.

The American Rhinologic Society will hold its fifth annual meeting in the Belmont Hotel, Chicago, Oct. 10. This will be preceded by a surgical seminar in the Illinois Masonic Hospital, Chicago, Oct. 7-9.

The scientific program at the hotel will include: "Symposium on Objective Tests for Nasal Function," "Choices of the Rhinologist in Approaching the Tear Sac," "Tissue Reactions to Nasal Transplants," and "Basic Immunology of Bone Transplants." The first official showing of a new color and sound film, "The Human Nose," will follow the evening dinner.

For further information write to Dr. Robert M. Hansen, secretary, 1735 N. Wheeler Ave., Portland 12, Oregon.

The 24th annual congress of the North American Federation, International College of Surgeons, will be held in the Palmer House, Chicago, Sept. 13-17.

The North American Federation covers the United States, Canada, Mexico, Cuba, Haiti, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica and Panama.

Dr. Karl A. Meyer of Chicago and Dr. W. Wayne Babcock of Philadelphia have been named honorary chairmen of the congress, and Dr. Alexander Brunschwig of New York has been chosen general chairman.

The sixth annual meeting of The Academy of Psychosomatic Medicine will be held Oct. 15-17, at the Sheraton-Cleveland Hotel in Cleveland. The meeting will be oriented and directed to fit the needs of non-psychiatric physicians. Practical everyday office management of psychosomatic problems and emotional disturbances will be dealt with in formal papers, symposia, panel discussions, and small study groups.

Information may be obtained from Dr. Bertram B. Moss, Suite 1035, 55 East Washington Street, Chicago 2, Illinois.

The American Goiter Association again offers the Van Meter Prize Award of $300.00 to the essayist submitting the best manuscripts of original and unpublished work concerning "Goiter—especially its basic cause." The studies so submitted may relate to any aspect of the thyroid gland in all of its functions in health and disease. The Award will be made at the Fourth International Goiter Conference in London, England, July 5-9, 1960. For 1960, the recipient of the Award will receive consideration for an award of a travel honorarium. For further information contact the Secretary, Dr. John C. McClintock, 149½ Washington Avenue, Albany 10, New York.

The Sister Elizabeth Kenny Foundation announces continuation of its program of post doctoral scholarships to promote work in the field of neuromuscular diseases. These scholarships are designed for scientists at or near the end of their fellowship training in either basic or clinical fields concerned with the broad problem of the neuromuscular diseases.

The Kenny Foundation Scholars will be appointed annually. Each grant will provide a stipend for a five-year period at the rate of $5,000 to $7,000 a year depending upon the scholar's qualifications. Candidates from medical schools in the United States and Canada are eligible.

Inquiries regarding details of the program should be addressed to: Dr. E. J. Huenekens, Medical Director, Sister Elizabeth Kenny Foundation, Inc., 2400 Foshay Tower, Minneapolis 2, Minn.

Official Proceedings

Reports of 1959 Meetings of House of Delegates

First Session

The first 1959 meeting of the House of Delegates of the Kansas Medical Society was held at the Jayhawk Hotel, Topeka, on Monday morning, May 4, following a 7:30 breakfast. Dr. Thomas P. Butcher, Emporia, presided.

Dr. A. W. Fegtly, Wichita, sergeant at arms, reported the presence of a quorum, later established to include 71 delegates and 7 alternates, 13 councilors, 9 officers, and 5 past presidents.

Minutes of the 1958 meetings, as published in the JOURNAL, were approved.

Dr. Butcher reported that councilor and committee reports published in the April issue of the JOURNAL had been summarized by a committee composed of Dr. Harold Glover, Newton, chairman; Dr. Murry C. Eddy, Hays; and Dr. A. C. Eitzen, Hillsboro. He announced also that the second Reference Committee, which would summarize and make recommendations concerning all business introduced at the first meeting of the House of Delegates, would be composed of Dr. George F. Gsell, Wichita, chairman; Dr. J. W. Manley, Kansas City, and Dr. G. E. Burket, Jr., Kingman. The meeting of this committee was scheduled for 9:00 a.m. on Tuesday in the Exhibit Hall near the registration desk.

The president next explained that at the last meeting of the House of Delegates a year ago, action had been taken to conduct a primary election annually at the first House of Delegates meeting for each office in which more than two candidates were named. A primary election was held for the positions of second vice-president and for the American Medical Association alternate delegate for 1960-62. No other office received further nominations. While the members voted Dr. Butcher appointed as tellers Dr. A. W. Fegtly, chairman; Dr. G. W. Cramer, Parsons, and Dr. Cramer Reed, Wichita. At a latter part of the meeting Dr. Fegtly announced that the names of Dr. N. L. Francis, Wichita, and Dr. E. J. Ryan, Emporia, would remain on the ballot for second vice-president. Dr. C. V. Black, Pratt, and Dr. Clair O'Donnell, Ellsworth, would remain on the ballot as the nominees for the 1960-62 A.M.A. alternate delegate.

Dr. Harold Glover, chairman of the Reference Committee on Reports, who had summarized all the reports of councilors, officers, and committee chairmen introduced some 20 separate resolutions. These resolutions are reproduced later in this issue of the JOURNAL under the *Second Session* heading.

Dr. Orville R. Clark, Topeka, presented the report of the Committee on Necrology, after which Dr. Butcher asked the House to rise for a moment of silence in memory of members whose names had been read.

Dr. G. E. Burket, Jr., secretary, gave a report on the membership. His report was seconded and approved as read.

The treasurer's report was presented by Dr. John L. Lattimore, Topeka, who read the preliminary audit just completed, which gave summary accounts of the receipts, disbursements, and balances for the Society in each of its various accounts. Dr. Lattimore further explained that the fiscal year of the Society closes on April 30. Since it was impossible to present the final audit until later, a motion was made and carried to approve the treasurer's report as read.

The report of the chairman of the Editorial Board, Dr. Clark, was as follows:

This, my eighth annual report to the House of Delegates as the Editor of the JOURNAL, contains both pleasant and unpleasant features. The Editorial Board is again composed of Drs. David E. Gray, Richard Greer, Dwight Lawson and John A. Segerson. Each of them has given freely of his time in doing reviewing and editing of papers, and in counselling for JOURNAL policy. Dr. Vernon E. Wilson, of the University of Kansas Medical Center, has continued to be an Advisory member of the Board, editing all the papers from the Medical Center, and making most of the arrangements for the annual KUMC issue in March.

We feel that the arrangement of putting all the advertisements at the front or the back of each issue, rather than interspersed with reading material, makes for a more attractive volume, and one which is more easily read. It certainly is an improvement for any who have the JOURNAL bound permanently. We have had no complaints from any advertisers about this plan since its institution.

We have attempted, in the last two volumes, to improve the index by multiple listing of each article as well as adding an authors' index. It should be easier to find a specific article, or all those on related subjects, with this type of index.

The thirteenth annual University of Kansas issue appeared in March, and as before, it was our largest issue from the point of view of content of scientific

articles. We are grateful to the faculty of the school for the presentation of these interesting issues each year, as well as the other papers offered during the other months.

In February we published a special issue devoted primarily to the subject of Rural Health. Through the courtesy of the A.M.A., the articles in this issue were reprinted and distributed to the registrants at the Rural Health Conference in Wichita.

On March 15, Miss Pauline Farrell left the JOURNAL office after having given us appropriate notice of her intention. Since her departure there has been no one to do the work she formerly did, and as a result the JOURNAL business has been ineffectively done. The April issue was incomplete, and the May issue will be lacking many of its usual features. Three days ago Mr. Dallas Whaley called me by telephone and informed me that he is now working in the office, and will be doing some JOURNAL work, so I hope that future issues will soon return at least to the previous standards.

We have completed arrangements for some changes in format, and have new headings for departments, and had hoped to "spruce up" the JOURNAL before this time, but these changes will not be made until there is more stabilization of our affairs than at present.

The financial condition of the JOURNAL has remained satisfactory. No annual audit has yet been completed, so I am not able to give you definite figures at this time—but you probably wouldn't care to hear them anyway.

It is with sincere and deep regret that I am forced to report to you the JOURNAL's loss of our reliable Miss Farrell. After more than fourteen years of service, her presence is badly missed. None of us are indispensable, but the chaos which has enveloped the JOURNAL office since March 15 has made it appear that Miss Farrell approached that quality. All the members of the Editorial Board regret that she felt she should leave, and we wish her Godspeed and all possible happiness in her new work.

Eight months ago the members of the Editorial Board embarked on the preparation of a special Centennial Issue of the JOURNAL as our contribution to the celebration now in progress. This issue was planned to be entirely a reproduction of material previously published either in the *Transactions of the Kansas Medical Society* (1859-1900), or the JOURNAL OF THE KANSAS MEDICAL SOCIETY (1901-1959), so selected as to portray living conditions, philosophy, and changing conditions of practice in the various periods of the century. This plan has been followed, and all the text is reproduced from these sources except for a brief introduction to each section. We have added a rather extensive amount of original art work and some non-medical pictures representative of the five periods into which the century has been divided. There is no advertising in the book. The JOURNAL will bear the cost, without expense to the Society, and there is no special assessment for it.

Some articles from the old publications are reproduced in their entirety, while others have been partially deleted in the interest of space and reader interest. The task of searching through every volume of the *Transactions* and the JOURNAL in search of the most interesting and representative articles was accomplished by Drs. David E. Gray, Richard Greer, John A. Segerson, and Dwight Lawson. They selected the articles for reproduction and when desirable edited them for this purpose. In addition to this phase of the work, the Board had thirteen formal meetings and an unknown number of informal conferences to coordinate the different sections. These Board meetings extended from September 11, 1958 to March 11, 1959, when the last of the selections were made, and the copy was sent to the printer. Since that time it has been a matter of reading first the galley proof, then page proof, the selection of pictures to be included, completion of the art work, and the many other little things that don't come up for consideration until they are met head-on.

Miss Farrell made a tremendous contribution in the solution of problems during the time we were having Board meetings, in helping to prepare copy for the printer, and numerous other things. Her part was terminated by her departure, but had been vital before that time. The special art work has been done by Mr. Perce Harvey, Jr., of the Harvey Advertising Agency, in Topeka, and considerable assistance was given by Mr. Langsdorf of the Kansas State Historical Society in the historical material and pictures. Mr. Ovid H. Bell, our printer, has been most helpful, especially since Miss Farrell's departure, when he and his staff have done much of the work which would have fallen to her lot had she been here.

It is no exaggeration to say that the production of this volume has required hundreds of hours of work. It has been interesting work, and I have been impressed by the fact that the time was contributed so ungrudgingly by all concerned. It is our fond hope that the issue will bring to the members of the Society some enjoyable reading and reminiscing, and that it will be of value in recalling the joys, the sorrows, the triumphs and the disappointments of the Kansas Medical Society through its first century.

I have here, the first copy of this 180 page Centennial Issue, which reached me only yesterday, and so far has been seen only by those who were active in its production. Probably within the next week copies will be mailed to all those who receive the JOURNAL.

I hope that you will feel it deserves more attention than a direct trip to the wastebasket.

After the reading he was presented a bound volume of the JOURNAL as a token of appreciation for his efforts.

Supplementary committee reports included a report from the Committee on Postgraduate Study, Dr. William H. Algie, Kansas City, chairman. In his absence it was read by the president. It concerned the commercial postgraduate courses and the osteopathic physicians attending the circuit courses offered in Kansas.

At this time, the president interrupted the program to report upon the condition of the President's Fund. He stated that at the time he took office approximately $700 was made available to him in this fund. Contributions during the year amounted to about $3,400, making a total of $4,100. During the course of the legislature, for committee expense, meals, etc., a total of $1,180 was spent. There is at this time in the President's Fund a total of $2,920.

The president called for additional supplementary reports. Next Dr. W. J. Reals, Wichita, chairman of the Fee Committee, together with Dr. D. G. Laury, Ottawa, chairman of the Blue Shield Relations Committee, introduced a supplementary report on the problem of ageing.

Dr. Clyde W. Miller, Wichita, chairman, introduced a report of the Committee on Public Relations. A report was also given by Dr. D. G. Laury, Blue Shield Relations, on hospital usage.

The final supplementary report was given by Dr. L. E. Leigh, Overland Park, chairman of the Committee on General Practice Award. He announced that his committee had submitted the name of Dr. Conrad M. Barnes, for the A.M.A. Award on General Practice, but that this nomination had not been successful in the A.M.A. selection.

The meeting continued with the distribution of mimeographed copies of a letter recently sent to Dr. Arthur Flemming, director of the Department of Health, Education and Welfare, in which President Dwight D. Eisenhower was invited to attend this meeting. Dr. Flemming telephoned that the President was willing to come, but felt it expedient to do so for the coming year rather than at the present time.

In response to the president's calling for new business, Dr. L. E. Knapp, Wichita, introduced a resolution to increase anesthesia fees under the Workmen's Compensation Act.

In the absence of Dr. Karl Voldeng, Wellington, chairman of the Committee on Relations with the Bar Association, Dr. Butcher spoke briefly upon the problem of malpractice and presented a resolution requesting that a State Review Committee be established immediately to study all malpractice actions in the state.

Dr. D. J. Smith, Overland Park, introduced a resolution asking that the Blue Shield Relations Committee and the Hospital Usage Committee be permitted to add to their representatives from the Greater Kansas City area.

Dr. L. E. Leigh introduced a resolution expressing appreciation to the editor and to the Editorial Board for an excellent job in the production of the JOURNAL.

All items of business listed above were referred to the Reference Committee so that recommendations for acceptance or rejection might be brought to the House at its second meeting.

Dr. Butcher asked for a suspension of the rules so that an immediate action might be taken. He announced that Mr. Milburn Stone, the actor who portrays the part of "Doc" Adams, and Miss Amanda Blake, the actress who plays Kitty, in the television show "Gunsmoke," would appear as guests at the annual banquet. Dr. Butcher asked the House to approve awarding Mr. Stone the *Outstanding Service Award* of the Kansas Medical Society and to give this award to him at the banquet. A motion was made and carried that "Doc" would receive the *Outstanding Service Award for 1959* for his portrayal of the part of a pioneer country doctor.

As there was no further new business from the floor, various announcements were made and the meeting adjourned.

Second Session

The second 1959 session of the House of Delegates was held at the Jayhawk Hotel, Topeka, beginning with a luncheon at 12:15 on Wednesday, May 6, 1959. Dr. T. P. Butcher presided. The presence of a quorum was announced by Dr. A. W. Fegtly, sergeant at arms.

Dr. Butcher ordered ballots to be distributed for the election of officers. During the election, he announced that the Tellers Committee would be Dr. A. W. Fegtley, chairman, Dr. K. L. Graham, Leavenworth, and Dr. George R. Maser, Mission.

The president then called upon Dr. Orville R. Clark, editor of the JOURNAL, for an announcement. Dr. Clark presented specially bound copies of the Centennial issue of the JOURNAL to the president and the president-elect of the Society.

Dr. George F. Gsell, chairman of the Reference Committee on Resolutions, presented committee recommendations on various items of business.

The House voted to:

1. Approve the Council report which indicates that medicine has progressed satisfactorily and that no major problems exist at any district.

2. State the purpose of the Kansas Blue Shield as "to help preserve the voluntary system of medical care as a segment of the traditional free enterprise system

of the United States of America." It was initiated and sponsored by the Society to make certain that voluntary health protection be made available to all people of Kansas at reasonable and fair cost and, further, to conduct research in medical economics.

Explicitly, "voluntary health protection" shall mean system of financing the cost of necessary services of physicians and other allied professional groups to the greatest extent practicable through the pre-payment plan.

"Reasonable and Fair Cost"—shall mean the establishment of fair payment of health services. Such payment shall be regarded as payment in full for covered services to patients with income below the ceiling level stated in membership agreement, and the Shield shall make available these agreements with an income ceiling under which the family of an average income might qualify for service benefits. It is therefore agreed that the Blue Shield payments for health services and income levels and the membership agreements will be reviewed periodically and appropriate adjustments made.

"Research"—shall mean a constant effort and research and experimentation in medical economics, health benefits, and enrollment methods.

3. Authorize Blue Shield to place its services at the disposal of county or regional medical societies in the development of localized pre-payment program, and the Society looks for favor on these various products of pre-payment benefits which are being developed by the county or regional society through the Blue Shield.

4. Keep within this purpose and authorize Blue Shield to market a service contract with income limits of $4,000 single and $6,000 family (plan C), and that it be mandatory for such a plan to be approved by each county medical society where it is to be used before being offered to the public.

5. Approve that the district Blue Shield Relations Committee be designated as Adjudication Committee for reviewing of usual charges under the Blue Shield Extended Coverage contracts.

6. Approve that the plan currently be based on the Kansas Relative Value Schedule to be extent practicable at a dollar-value per point of $5.00, and that such a plan be based on a Relative Value Schedule as the schedules may be amended by the House, such amendment to be presented by the Fee Committee, and that the unit value as applied to such plan be annually reviewed by the House and approved by the Fee Committee.

7. Approve that the Committee on Industrial Medicine be instructed to meet with the Compensation Commissioner to consider the revisions of entire Fee Schedule.

8. Empower the Joint Committee to propose a series of disscussions with Kansas Hospital Association Council on Blue Cross-Blue Shield Relations with a view toward exploring various methods which may be adopted jointly by the Society and the Hospital Association to provide adequate coverage to people over 65 on the basis of their ability to pay to the end that these people in the state of Kansas may have access to economical, effective pre-paid health service, that a representative of the Kansas City Area of Blue Shield plan be invited to sit in on the discussion.

9. Include the first and second Vice-President in the Executive Committee. Section 19 of the By-Laws will now read in part: "The Executive Committee of the Council shall be composed of the President, President-Elect, Immediate Past-President, the First Vice-President, the Second Vice-President, the Secretary and the Treasurer. . . ."

10. (a) The President-Elect shall be chairman of the Meeting Format Committee and shall call the committee in session as often as necessary.

(b) Within 30 days after the close of each annual session the president of the county medical society where the last meeting was held shall name an active member of his society to this committee, who shall serve until after the conclusion of the next annual meeting held in the jurisdiction of his county society. Vacancy will be filled by the president of the same county medical society.

(c) The president of each other county society in which the annual meetings are held, shall likewise appoint an active member of his society to this committee. Their terms shall expire at the conclusion of the next meeting held in their jurisdiction.

(d) The President of the Society shall annually appoint a member from a component society in whose jurisdiction annual sessions are not now held, to this committee for a term of two years.

(e) The duties of this committee shall be to recommend to the Council the place and date of the annual session. It shall be made not less than two and one half years ahead of the annual meeting, and shall recommend to the Host society the general format of the meeting, but this committee shall not select or secure speakers or make local arrangements, and that format shall be approved by the Council at least one year in advance of the meeting in question.

11. Send back to the Committee on Constitution and By-Laws for further study the resolution which proposed to change the selection of members of the Nominating Committee.

12. Approve the rules and regulations of the Kansas Voluntary Council on Professional Standards for Hospitals, as printed in the April issue of the JOURNAL. It was recommended that the term "Hospitals" be defined as those hospitals licensed by the State Board of Health.

13. Continue the work of the special committee on Hospital Usage for one more year.

14. Approve a resolution submitted by the Kansas Society of Radiology, whereby it is the policy of the Kansas Medical Society that it is unethical for any physician to enter into relationship with any hospital, corporation, or lay body by whatever name called or whoever organized, which enabled it to offer his professional services for a fee. Also, that the physician shall not divide fees. That the hospital services shall not include the practice of medicine in any of its specialties which have been defined by the A.M.A. as the practice of medicine. That the physician should establish his own fee and that the statement rendered for medical service shall name the physician.

15. Have the Committee on Relations with the Bar Association continue its study during the year and bring back its recommendations to the next annual session, and the attorney of the Society be invited to attend these meetings.

16. Send to the Council of the Society a resolution submitted by the School Health Committee which passed that the State School Health Council be supported by a contribution of $500 for membership next year.

17. Have the president of the Kansas Medical Society, the immediate past-president, the chairman of the Committee on Medical Schools together with executive secretary meet with the sub-committee on the medical schools of the Board of Regents in the effort to arrive at a more realistic fee for indigent care at the Medical Center.

18. Have the Constitution and By-Laws of the Kansas Medical Society be brought up to date and reprinted.

19. Especially commend all the committees for their efforts during the past year and that the committee reports and the supplementary reports be approved.

20. Adopt the Reference Committee's report as a whole.

Dr. Butcher expressed the appreciation of the Society and of the House of Delegates for the effort of the Reference Committee.

The House of Delegates expressed their gratitude to the Shawnee County Medical Society for their fine hospitality.

Dr. Leland Speer invited the Kansas Medical Society to Kansas City for the 1962 meeting. Dr. J. W. Reals invited the Kansas Medical Society to Wichita for its 1961 meeting. Their invitations were accepted.

At the beginning of the meeting ballots were distributed for the election of officers and Dr. Butcher called for a report of the tellers upon the election. It was reported that all candidates for uncontested offices were elected and that the position of second vice-president had been given to Dr. N. L. Francis, Wichita. The position of alternate delegate was given to Dr. H. S. O'Donnell, Ellsworth.

Dr. Butcher thanked the Society for its cooperation and stated that the greatest value he had received in this experience came from the personal friendships he had made in all areas of Kansas.

Reports were also heard for five councilor districts on the selection of new councilors for the three year terms.

Dr. Butcher then expressed his real pleasure in giving to Dr. Glenn R. Peters the office of the presidency of the Kansas Medical Society. Dr. Peters thanked Dr. Clark and the Editorial Board for the gift of the special edition of the JOURNAL. He thanked Dr. Butcher for his service to the Society, which had been done throughout the year with honor. He then adjourned the session.

Who Are Patients

Women use physician services more frequently than men. Age too plays a role, with children under 5 and adults of both sexes in the older age group accounting for the highest number of physician visits.

Most visits take place in the physician's office. About two-thirds of these took place in the physician's office as against about one ninth at the patient's home, and one tenth at the hospital clinic. Home visits were three times more frequent for patients in the older age group.

Most physician visits—about 70 per cent—involve diagnosis and/or treatment. Of such visits, two thirds are related to chronic and one third to acute illness. General checkup accounts for about 10 per cent of patient visits, immunization for about 7 per cent and prenatal and postnatal care for about 4 per cent.

When it comes to seeing patients, the general practitioner has the greatest national average daily patient load, averaging 18.5 patients a day. Second greatest load—about 17 per day—is carried by the pediatrician.

Tomorrow's Doctor

One day your ailments will be diagnosed by aid of an electronic calculator, predicts Dr. Ralph W. Stacy of Ohio State University. From birth onward, all medical facts about you will be stored in some central office. Then they can be fed into the calculator, with new facts and observations, whenever you have a check-up or get sick, to help the doctor make his diagnosis, Dr. Stacy told the Biophysical Society.

No horse gets anywhere until he is harnessed. No steam power drives anything until it is confined. No Niagara is ever turned into light and power until it is focused, dedicated and disciplined.

—*Harry Emerson Fosdick*

PHYSICIANS' ACTIVITIES

Dr. M. M. Tinterow, president of the Kansas Society of Anesthesiologists, presented a paper at the Southwestern Surgical Congress in Denver. The Wichita physician's subject was "The Use of Hypnoanalgesia in the Relief of Intractable Pain."

The Dickinson County health officer has resigned. **Dr. Kenneth Conklin** resigned his post for health reasons and is to be replaced by **Dr. F. G. Dietrich.** Dr. Dietrich will fill the unexpired term for the remainder of this year.

Dr. Wayne L. Fowler, president of St. Joseph's Hospital staff, and **Dr. M. C. Pearson,** surgeon and vice president of the Hospital, spoke last month before the state meeting of the Kansas Medical Record Librarians' Association held in Concordia. The two day meeting attended by more than 50 record librarians was sponsored by the Kansas Hospital Association.

Dr. T. P. Butcher, past-president of the Society, spoke before the spring meeting of the Co-ordinating Council of the Wichita Regional Blood program held in Wichita.

Dr. R. Dale Dickson, Topeka, was elected to the Board of Regents of the American College of Allergists at their recent meeting in San Francisco. He also moderated a panel at Houston, during the Southwest Allergy Forum. **Dr. Ralph Hale,** Wichita, attended the same conference and presented a paper entitled "Seeds as a Source of Food Antigen." He was also a member of a panel discussing "Food Allergies."

Gov. George Docking reappointed to another four year term **Dr. L. L. Bresette,** of Kansas City. He is to serve on the State Healing Arts Board along with two Osteopaths.

Dr. Glenn Peters, President of the Society, presented nine gold certificates recently at a dinner honoring nine Kansas physicians who had been in active service for 50 years or more. The dinner was sponsored by the Wyandotte County Medical society.

Dr. William T. West, of the Wichita Clinic, recently became a diplomat of the American Board of Obstetrics and Gynecology. He is a member of the Sedwick County Medical society.

Dr. Joseph M. Stein was in Los Angeles in April to participate in the meetings of the American Academy of Neurology. Dr. Stein also attended the Sixth Annual K. U. Institute on Research in Clinical Psychology held last month.

A large number of the staff from the Menninger Foundation attended meetings of the American Psychoanalytic and American Psychiatric Associations held

NEW MEMBERS

Francis R. Applegate, Jr., M.D.
110 E. 10th Street
Goodland, Kansas

Stuart C. Averill, M.D.
Topeka State Hospital
Topeka, Kansas

Reuben J. Burkman, M.D.
121½ E. Main
Chanute, Kansas

Rosemary B. Harvey, M.D.
1900 E. 9th Street
Wichita 14, Kansas

Robert F. Horseman, M.D.
5839 Nall
Mission, Kansas

Edgar W. Johnson, Jr., M.D.
104 Prairie Village Med. Building
Prairie Village, Kansas

Eugene A. Peterson, M.D.
201 S. 9th Street
Humboldt, Kansas

Horace G. Whittington, M.D.
Watkins Memorial Hospital
Lawrence, Kansas

in Philadelphia. **Dr. Joseph Satten** presented a paper "Murder Without Apparent Motive," and **Dr. Karl Menninger** gave the Academic Lecture, "Hope." Others attending the meeting included **Drs. Carl Epstein, William Menninger, William Tarnower, Irving Kartus,** and **Prescott Thompson.**

Dr. M. P. Ballard, Delphos, has been appointed by the Ottawa County commissioners as county health officer.

The community of Downs honored **Dr. J. E. Hodgson** last month when he completed his 60th year in the medical profession. They held a special musical program featuring the high school band, various singing groups, highlights from the Doctor's life, and reminiscences by his long time associate, **Dr. H. B. Vallette** of Beloit.

Dr. Hodgson started his practice at Long Island in 1899. He attended Central Medical College at Des Moines, Iowa, graduating the same year as he moved to Kansas. He served as a hospital steward during the Spanish-American War. He did postgraduate work at Polyclinic and Columbia University in New York.

He has been a physician and surgeon for the Missouri Pacific Railroad for many years and served three terms as mayor of Downs.

A quiet family birthday party was the setting for celebrating **Dr. J. A. Crabb's,** Topeka. 90th birthday recently. Dr. Crabb, who was born in 1869, has been a member of the Society since 1933. He received his medical degree from the University of Kansas School of Medicine in 1906. He is also a member of the Shawnee County Medical society.

Gathered around the celebration table were a number of Dr. Crabb's family and friends.

Dr. R. M. Daugherty will join the staff of the Kansas University Student Health Center late this summer. He is retiring from his practice in Meade for health reasons. He and his wife will move to Lawrence later this summer.

Dr. D. C. Chaffee plans to move to Topeka this month to join the staff at the VA Hospital. He will turn over his Abilene practice to Dr. C. Rorabaugh who has recently completed his internship at Wesley Hospital in Wichita. Dr. Rorabaugh will specialize in general practice and obstetrics.

Dr. Chaffee has been practicing in Abilene since 1946, and is a member of the Dickinson County Medical society.

THE KANSAS PRESS LOOKS AT MEDICINE

Editor's Note. In this section the JOURNAL *reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.*

Doctors About-Face

The American Medical Association this week made what is called the "A.M.A.'s most important socio-economic action in years."

Voting delegates at the annual A.M.A. convention approved a policy change to permit cooperation and "closer liaison" with a form of health insurance known as "closed panel plans."

These are plans under which a subscriber prepays a fee and receives medical care from panels or groups of doctors, often organized in clinics. The plans frequently are administered by unions (such as the United Mine Workers), industrial employers (Kaiser, Consolidated Edison of New York), and other parties.

The doctors have opposed them in the past because they felt the plans did not allow "free choice" of a doctor by a patient. The closed panel plans insist that their insured members use only certain doctors and certain hospitals.

So "free choice" now will mean not only the patient's traditional right to pick any doctor he wants to care for him, but also the right to sign up with a group of doctors enrolled in one of the plans.

What will this mean? Probably more of the plans will come into existence, tying in more doctors and more patients. This will inevitably cut down the market for the "solo practitioner," even though many will prefer him. (Opponents of the closed panel doctor argue that he is assured of an income no matter what quality of care he dispenses.)

From a philosophical viewpoint, the A.M.A. seems to be coming around more to providing care in the way people happen to want it, and not so much on what suits the doctors themselves. Far from bringing socialized medicine, this new attitude may be the best way to head it off.—*Wichita Eagle, June 12, 1959.*

Worried Medicos

Time is running out for the exercise of emphatic leadership by doctors in the field of medical-hospital costs. This probably realistic appraisal was given to

the American Medical Association by the outgoing and the incoming presidents of that organization. Unless the doctors voluntarily cooperate to bring down costs and stop spiraling health insurance rates, the politicians will take over.

That is as plain as the nose on your face. Too many votes are involved among citizens unhappy about medical care and costs not to tempt the politicians to propose taking government action. Such action, once begun, would trend steadily toward government controlled health services.

In discussing the situation, the doctors take particular note of the health problems of the elderly. The increasing army of the retired will either get adequate medical-hospital care under the voluntary system or the politicians will see that they do. The same goes for holding the line on charges so that insurance rates can be kept in reach of the great majority.

The doctors have a strong organization, supposedly able to keep members in line with the codes. Most of them are code-abiding. But it is recognized by older physicians that many of the newer medicos have different ideas about services and pay. Will these be persuaded, in time, to comply with the current needs of private practice? Or will they continue their unpopular methods until the volume of citizen talk is judged by the politicians to be enough to warrant government action?—*Wichita Eagle, June 9, 1959.*

Medical Care Costs Present a Problem

Every day man gains more medical knowledge, learns better how to sustain the body against the ravages of time and disease.

And every day, communication becomes more effective so news of the existence of these medical miracles spreads widely and rapidly.

These two facts have created a demand for medical care that has no parellel in history. Nearly everybody knows there are new ways to alleviate pain and prolong life. And everybody wants a share of those blessings.

But there is still a broad gap between this demand for medical care and the ability to pay for it. Various efforts are made to close the gap: private insurance, government-paid medical care for those on welfare, government, business and church subsidization of hospitals.

But still the cost mounts. In an effort to control this spiral, hospitals shave costs wherever they can, and do a remarkable job of providing service that is within the reach of most wage earners.

One of the economies which makes this possible is the low wages, over the nation generally, which hospitals pay their menial help—the maids, janitors and other non-professional people, without whom the hospital couldn't function.

In New York, where some of these workers make as little as $30 a week, and are prohibited by law from organizing for collective bargaining, a bitter strike of hospital employes is in progress. It is a highly emotional strike and the workers are being condemned on all sides for "striking against the sick."

A "strike against the sick," is a serious matter, morally as well as practically. But if the blame for it is to be assessed fairly, we must also consider the moral implications of all of us enjoying rich medical benefits, partly at the expense of virtual slave labor.

The demands in New York for higher hospital pay, are sure to spread across the country. Inevitably they will push the cost of medical care higher. They will require another appraisal of our means, both as individuals and as communities, to meet the costs.—*Hutchinson News, June 3, 1959.*

COUNTY SOCIETIES

Nine physicians, each with 50 years or more of active service were honored last night by the Wyandotte County Medical society. Their combined medical practice represents 509 years of service to Kansas patients.

The five who were present received framed, gold-embossed certificates at a dinner observing the Society's 100th birthday. The five attending were: Dr. James G. Lee, Sr., of Bonner Springs, who received his degree in 1892; Dr. C. C. Nesselrode, 1906; Dr. Ethan Barker, 1908; Dr. George Hobson, 1908; and Dr. Earl Millis, who has been a physician for exactly 50 years.

Four physicians who have held degrees over 50 years, but were unable to attend the ceremonies in their honor were: Dr. George W. Richards, 1892; Dr. H. L. Regier, 1907; Dr. J. G. N. Soanes, 1901; and Dr. E. D. Williams, 1899.

The Sedgwick County society held their elections and annual business meeting last month. The following doctors were elected to serve in 1960: C. W. Miller, president; H. C. Blaylock, vice-president; P. A. Kaelson, Jr., secretary; and J. T. Hamilton, treasurer. They will take office in January.

Dr. W. P. Callahan, Sr., presented an informative talk regarding the new Healing Arts Board established by the Legislature in 1957. He was the Board's first president.

Two films entitled "The Doctor Defendent" and

"No Room for Error" were shown by Dr. N. C. Nash, chairman of the Legal Review Committee. These films were from the A.M.A. library and are made available to state and county medical societies.

The Woman's Auxiliary and the Shawnee County Medical society have spent many months searching for old photographs of the doctors who have served Topeka. May 17, was the highpoint of the first stage of this continuing project, when they presented 88 photographs to the Stormont-Vail Hospital. These pictures are hung in the corridor of the hospital that divides the old section from the new.

The display has attracted much attention from visitors, and promises to grow even more attractive as elusive photographs from the earliest Topeka doctors are found. The pictures are hung in the order of the doctor's death, and some of them go back to the 1880's. The doctor's name, year of his birth and death, and the medical school he attended are attached to the photograph.

The Central Kansas Medical society met at the Russell City Hospital last month. Dr. Harvey Tratbar and Dr. Leo Cawley, of Wichita, were guest speakers. Following the session there was a dinner at the Elks Club for the doctors and their wives.

A free diagnostic clinic for crippled children of southeast Kansas was held recently in Chanute. It was under the sponsorship of the Neosho County Medical society and several other local clubs and national organizations. Three Kansas City doctors and one Wichita doctor participated in the free clinic for children of that area.

A recent article about the 1907 Smith county population in the *Smith Center Pioneer*, prompted Dr. Victor E. Watts, secretary of the Smith County Medical society, to do some research on medical practitioners in the county at that time. There were 23 of them practicing in 1907.

In 1907, there was only one automobile in use by a doctor. "A horse and buggy was the only sure way of arriving at a patient's home in those days," said Dr. Watts.

The Wilson County Medical society conducted its last polio immunization program for the current year at Neodesha recently, for the County Health Department.

Diphtheria, whooping cough, and tetanus shots were given free to infants and children up to 10 years of age.

X-Ray Diagnosis of "Strokes"

An x-ray diagnostic technique that provides accurate and precise factual information on the cause of brain "strokes" was described by a New Jersey neurosurgeon as "revolutionizing" the management of cerebrovascular disease.

He said the technique, known as cerebral angiography, has been perfected to the point where it is both highly effective and safe. It consists of injecting a new contrast agent, Hypaque, so that a series of x-ray films can visualize clearly the anatomic lesion causing the "stroke."

The "enormous value" of this new technique was explained by Dr. Robert A. Kuhn, of St. Clare's Hospital, Denville, New Jersey, in a scientific exhibit at the meeting of the American Neurological Association in the Hotel Claridge.

So effective is Hypaque as a diagnostic aid, states Dr. Kuhn, that one injection of 30 cc. of a 50 per cent solution of the agent will provide visualization of two-thirds of the brain's arterial and venous circulation. It reveals on films the entire circulation of the blood in the neck on the way to the brain.

Until recently, this method of "seeing" the cause of "strokes" carried some risk to the patient. Extensive use of the procedure since the development by Winthrop Laboratories of the opaque medium Hypaque®, diatrizoate sodium, involves little risk compared to that of the condition for which it is used, Dr. Kuhn says. He points out it is safe even for elderly patients with advanced hardening of the arteries. There has been no morbidity and no mortality in a personal series of over 100 patients with strokes of all kinds. . . .

The term "stroke" is called a misnomer, because it is not a diagnosis but a symptom. It is vital today to determine the precise underlying lesion since the victim has a far better chance of successful recovery as the result of recent striking advances in medical and surgical therapy.

Almost without exception, it is noted, the usual "stroke" develops because of interference with blood supply to the brain. While there are various reasons for the interference, the most common is arterial disease. Based on a study of a "mass of clinical reports and autopsies," Dr. Kuhn states that plugging of the carotid artery in the neck accounts for as many as one out of every four strokes. This type of "stroke" is being diagnosed much more frequently, which he attributes to increasing use of cerebral angiography.

Surgical reconstructive measures (to reestablish unobstructed blood flow to the brain) have been increasingly successful with a variety of techniques, and reports of arterial revision for occlusive cervical carotid disease, with marked subsequent improve-

ment of the patient, have become almost commonplace.

Recent advances in arterial surgery make it certain that, in the future, repair and construction, or replacement, of these diseased channels will be performed, in many cases, before irreparable brain damage occurs.

Except through cerebral arteriography, there is at present no way to accurately and unequivocally distinguish a stroke due to cervical carotid occlusion from one due to cerebral artery occlusion or insufficiency.

We can really respect a man only if he doesn't always *look out for himself.—Goethe*

Michigan Academy of G.P.

A monograph containing proceedings of the March 4, 1959 Symposium on Overweight and Underweight held by the Michigan Academy of General Practice is now available to physicians on request.

Dr. F. P. Rhoades, chairman of the Commission on Education of the Michigan Academy and program chairman for the symposium, said the monograph contains the first published papers on diethylpropion, an anorexogenic agent which appears to be almost completely free of side effects.

The drug was not available at the time of the Symposium, but can now be obtained upon prescription under the name Tepanil®.

During the Symposium, a doctor from Beekman

DEATH NOTICES

PERCY A. PETTIT, M.D.

Dr. Percy A. Pettit, 75, Paola, a long-time member of the staff of Trinity Lutheran Hospital, died last month at that hospital.

A physician in Paola since 1911, he had also worked in the out-patient clinic of the University of Kansas Medical Center as a participant in the preceptor program.

Dr. Pettit was born in Sherman, Ill., and attended medical school at the former Kansas City College of Physicians and Surgeons. He was a member of the Miami County Medical Society, a Mason, and a member of the Paola Rotary Club.

Among his survivors are his wife, two sons, two brothers, and a sister.

LANG F. BOWMAN, M.D.

Dr. Lang F. Bowman, 74, of Holyoke, former Sedgwick County coroner, died last month at Veterans Hospital. He had been ill for several years.

Dr. Bowman was born in 1884, at Manchester, Ohio. He moved to Wichita 40 years ago. He was county coroner from 1941 to 1951.

Dr. Bowman graduated from the University of Illinois, in 1912, and from Rush Medical College, Chicago, in 1915. He served during World War I in the Medical Corps at Camp Gordon, Ga. After the war he came to Wichita and set up practice.

He is survived by his wife.

M. F. RUSSELL, SR., M.D.

Dr. M. F. Russell, Sr., 74, a Great Bend physician for more than 50 years, died unexpectedly of a heart attack last month.

He began practice in Great Bend after his graduation from the University of Kansas School of Medicine in 1905.

He has been a member of the Society for 26 years and was a member of the Barton County Medical Society. Dr. Russell is survived by two sons, Dr. Homer B. Russell and Don Russell, Jr., both of Great Bend, and three brothers.

NORVAL W. ROBISON, M.D.

Dr. Norval W. Robison, 75, Rush County's senior physician in years of service, died in Rush County Memorial Hospital last month. He was born in Mt. Pleasant, Penn., in 1884, and came to Hill City with his parents a year later. He attended grade school at Great Bend. Dr. Robison received his medical training at the University of Kansas Medical School, graduating in 1910. Soon afterwards he moved to Bison and remained there in practice until his retirement. During World War I he was a Captain in the Army Medical Corps.

He helped to organize the Russ-Ness Medical Society and served in various capacities in that organization. Among his survivors are his wife, two sons, two daughters, and a brother.

Downtown Hospital in New York told of giving Tepanil to 70 overweight patients who were not under dietary restrictions.

It was explained to each patient that if the drug was able to depress their appetite, there would be a loss in weight. All were told that the drug was to be evaluated without special diet instructions.

All patients received a 25 milligram capsule one-half hour before meals. A majority were also given an extra capsule at 8:00 p.m. for control of the late evening urge, and a few were given six capsules a day in order to observe the effects of larger doses both on appetite and the appearance of side effects.

Sixty-two of the 70 patients had a satisfactory suppression of appetite with a satisfactory weight loss; the other eight patients lost little or no weight. The average weight loss was 1.29 pounds per week.

Another speaker reported similarly good results in a group of 32 patients, 20 of whom were given Tepanil alternately with phenmetrazine, a recognized appetite suppressant in general use.

Both drugs were effective in curbing appetite, but with a difference. Phenmetrazine was valuable in the patients who could tolerate it, but 11 of the 20 had reactions severe enough that the drug was discontinued. These reactions included nervousness, irritability, loss of sleep, and overstimulation.

By contrast, when the same patients took Tepanil, only two complained of ill effects (one of belching and constipation; the other of slight nervousness) and neither was severe enough to warrant discontinuance of therapy.

In all, 32 patients were given Tepanil over periods of several weeks. These patients lost weight at the safe rate of one to three pounds per week, and it was concluded that Tepanil "appears to be a safe, well-tolerated, clinically effective drug for the suppression of appetite in all age groups of patients."

A third speaker, told of similar good results.

His studies show that Tepanil can be added to the therapy of obesity even in cases in which obesity is complicated by organic diseases, especially of the cardiovascular system.

Yellow Fever

(Continued from page 302)

just as important to the people who lived and died with this disease, and, consequently, to our American heritage.

General Hospital
Kansas City, Missouri

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The justification of the injustice of the universe is not our blind acceptance of God's inexplicable will, nor our trust in God's live, his dark and incomprehensible love, for us, but our human love, notwithstanding anything, for him.—*Archibald MacLeish*

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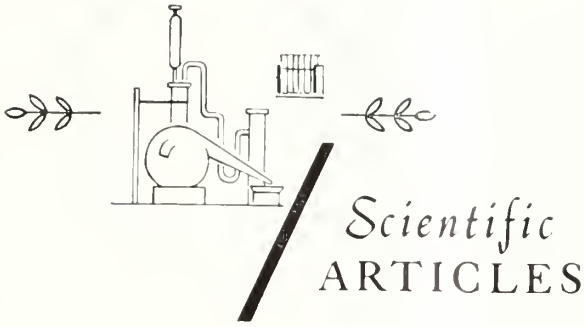

Atrial Septal Defects

Direct Closure Utilizing Hypothermia

C. FREDERICK KITTLE, M.D.; FRANK F. ALLBRITTEN, JR., M.D.; *and* CREIGHTON A. HARDIN, M.D., *Kansas City*

The operative experience with 23 patients having atrial septal defects and undergoing surgical repair utilizing hypothermia is discussed.

Hypothermia has been demonstrated to be a useful method for repairing most types of atrial septal defects. Due to the limitations of preoperative diagnostic methods, anatomic variations may be encountered, or there may be associated defects requiring a longer period for correction than permitted by hypothermia.

Since the initial efforts of Murray in 1948 and Cohn in 1947,[2] numerous and ingenious surgical techniques have been devised for closure of atrial septal defects.[3, 7] Both these early methods consisted of externally placed sutures in an attempt to close the interatrial communication. Cohn suggested invagination of the atrial wall into the defect, while Murray proposed a circumferential suture to narrow the septum and its defect. Although these procedures are being used in some clinics, any consideration of the anatomic variation of atrial septal defects and the anomalous pulmonary veins occasionally associated with them makes direct visualization mandatory for a successful repair.

TABLE I

TYPES OF ATRIAL SEPTAL DEFECTS

Isolated ostium secundum defect with or without anomalous pulmonary veins	19
Sinus venosus defect	3
Ostium secundum combined with ostium primum	1
	23

We would like to report our experiences with the surgical repair of the ostium secundum type of atrial septal defect at the University of Kansas Medical Center utilizing hypothermia. This method was selected as the procedure of choice from January, 1955, through June, 1958. Twenty-three patients were operated on by this technique. Nineteen of these had an isolated ostium secundum with or without anomalous pulmonary veins draining into the right atrium. Three patients had anomalous pulmonary veins entering the proximal superior vena cava in addition to a superiorly located atrial defect (sinus venosus defect).[8] One patient had both an ostium secundum and an ostium primum (Table I). For discussion these patients have been grouped according to their particular anatomic lesion since this is believed the best classification for preoperative diagnostic findings, operative indications and procedures, and postoperative results.

From the Department of Surgery, University of Kansas Medical Center, Kansas City, Kansas.

TABLE II
PREOPERATIVE CLINICAL FINDINGS OF OSTIUM SECUNDUM DEFECTS

Pt.	*Age*	*Sex*	*Symptoms*	*Physical Findings*	*RV*	*PA*	*% Sat FA*	*SF/PF*
1. BC	10	F	Asymptomatic	Sys m̄ LSB; P2! Dias m̄ apex	40/0	36/14	90	0.56
2. PS	4	F	Fatigue	Sys m̄ LSB; P2!	22/0	10/4	95	0.56
3. JK	9	F	Dyspnea	Sys m̄ LSB; P2! Continuous m̄ RSB	45/0	45/9	94	0.33
4. DO	11	M	Dyspnea	Sys m̄ LSB; P2! Dias m̄ LSB	50/0	23/12	93	0.28
5. SR	11	F	Fatigue	Sys m̄ LSB; P2!	30/0	28/10	97	0.40
6. SM	21	F	Dyspnea, edema orthopnea	Sys m̄ LSB; P2!	30/0	—	"Normal"	0.34
7. DM	18	F	Asymptomatic	Sys m̄ LSB; P2!	26/5	22/0	100	0.30
8. MC	39	F	Fatigue	Sys m̄ LSB; P2!	45/0	33/12	91	0.21
9. WD	19	M	Fatigue	Sys m̄ LSB; P2! Dias m̄ apex	44/4	24/8	94	0.36
10. JJ	23	F	Dyspnea and fatigue	Sys m̄ LSB; P2! Dias m̄ LSB	63/0	63/19	93	0.33
11. VM	13	M	Dyspnea	Sys m̄ LSB; P2!	50/0	48/11	93	0.38
12. PR	18	M	Asymptomatic	Sys m̄ LSB; P2! Dias m̄ apex	25/0	22/10	95	0.18
13. SS	6	F	Asymptomatic	Sys m̄ LSB	28/6	23/8	97	0.44
14. DC	6	F	Dyspnea and fatigue	Sys m̄ LSB; P2!	37/0	22/9	94	0.48
15. JH	20	M	Dyspnea and fatigue	Sys m̄ LSB; P2! Dias m̄ apex	37/10	37/12	96	0.47
16. CW	7	F	Fatigue	Sys m̄ LSB; P2! Dias m̄ apex	38/0	32/12	97	0.48
17. KS	57	F	Congestive heart failure	Sys m̄ LSB; P2! Dias m̄ LSB	68/0	76/20	99	0.40
18. JT	36	M	Dyspnea and fatigue	Sys m̄ LSB; P2!	66/0	—	96	0.40
19. CK	14	M	Asymptomatic	Sys m̄ LSB; P2!	50/0	32/11	98	0.44

Table II lists the preoperative findings in the 19 patients with ostium secundum with particular attention to their age, symptoms, physical findings, and pertinent catheterization data. In Table III the operative data are given regarding this same group with the size of the defect, the lowest temperature reached during the operation (since these were done utilizing hypothermia), the total time of aortic occlusion, their postoperative course, and the results of postoperative catheterization when done.

Table IV lists the preoperative findings in the patients with the sinus venosus type defect and the patient (number 23) with an ostium secundum and ostium primum. In Table V where the operative findings in these four patients are listed, the diagnosis of anomalous pulmonary vein drainage into the superior vena cava or a sinus venosus type defect was diagnosed by catheterization findings preoperatively. The presence of an ostium primum accompanying the secundum defect in patient number 23 was not suspected, although a review of her data revealed certain electrocardiographic features which we believe substantiate the preoperative diagnosis of ostium primum.

Technique of Operation

After being anesthetized the patients were cooled either by a blanket or by immersion in ice water to a temperature of approximately 80-90° F. Initially

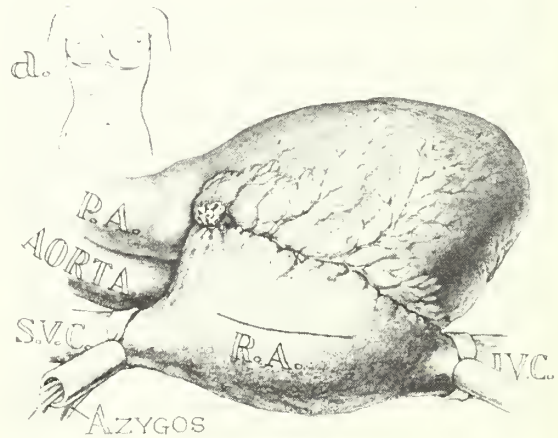

Figure 1. Sketch of heart: occluding vena caval tapes are in position, line of incision in right atrium is indicated.

a bilateral thoracotomy through the 4th interspace on the right and the 3rd and 4th interspace on the left was used, although more recently in several patients right unilateral thoracotomy only was employed. The pericardium was opened and a U incision was made anterior to the phrenic nerves after mobilization of the anterior mediastinal structures.

Linen tapes were passed about the intrapericardial portions of the superior and inferior vena cavae. These were threaded loosely through plastic tubes. After inspection of the heart and great vessels, a purse string suture was placed about the tip of the atrial appendage and exploration of the atrium was done. At this time the size of the defect, its location, the presence of anomalous pulmonary veins into the right atrium, and other abnormalities could be ascertained. The openings of the coronary sinus, the vena cavae, and the tricuspid valve were easily palpable. An accurate idea of the size and the extent of the defect could be obtained by this initial digital exploration. Several traction sutures were placed in a longitudinal line slightly anterior to the vena cavae (Figure 1). By these a portion of the atrial wall could be elevated and an atrial clamp applied prior to making the atriotomy.

The vena cavae were then occluded by drawing the linen tapes snugly through the plastic tubes. The heart was allowed to beat for approximately 20 seconds to expel blood contained within it. An occluding clamp was placed through the transverse pericardial sinus and applied to obstruct the aorta and pulmonary artery. The atrial clamp was removed and blood aspirated from the right atrium. Direct visualization of the interior of the right atrium

TABLE III
OPERATIVE FINDINGS AND POSTOPERATIVE COURSE OF OPERATED PATIENTS WITH OSTIUM SECUNDUM DEFECTS

Pt.	*Date*	*Size*	*Lowest Temp. (F)*	*Aortic Occlusion Time*	*Operative and Postoperative Courses*	*Postoperative Catheterization*
1. BC	6-55	1.2 x 1.2	83°	5′	Uneventful	.....
2. PS	12-55	1.5 x 1.5	83°	3′	Uneventful	Normal 6/57
3. JK	1-56	1.5 x 3.0	84°	5′	Uneventful	.....
4. DO	5-56	2.5 x 2.5	84°	4′	Uneventful	Normal 6/56
5. SR	8-56	2 x 3	83°	5′	Uneventful; pneumonia 3/57	Normal 12/56
6. SM	2-57	2.5 x 2.5 Fenestrated	82°	6′	Uneventful	Normal 5/57
7. DM	2-57	2 x 3	83°	4′	Uneventful	.....
8. MC	3-57	2 x 3 Fenestrated	86°	4′	Uneventful	.....
9. WD	3-57	1.5 x 5	81°	5′	Atrial tachycardia; otherwise uneventful	Recurrence
10. JJ	4-57	1 x 2.5	85°	5′	Uneventful	Normal 7/57
11. VM	5-57	2 x 3	82°	4′	Uneventful	Normal 12/57
12. PR	6-57	3 x 4	81°	5′	Ventricular fibrillation, Defibrillated Postop. course uneventful	Normal 11/57
13. SS	6-57	2 x 3	84°	3′	Uneventful	.....
14. DC	7-57	1.5 x 4.0 Fenestrated	89°	4′	Ventricular fibrillation, Defibrillated Postop. course uneventful	Normal 12/57
15. JH	11-57	5 x 6	87°	7′	Ventricular fibrillation, Defibrillated 2 mos. Postop. recurrence, died	.....
16. CW	11-57	1.5 x 2.5 Fenestrated	86°	5′	Uneventful	.....
17. KS	11-57	2.5 x 3	87°	4′	Slight decompensation	.....
18. JT	1-58	2 x 3	83°	6′	Died 5th day acute decompensation	.....
19. CK	6-58	1.5 x 2	87°	6′	Uneventful	.....

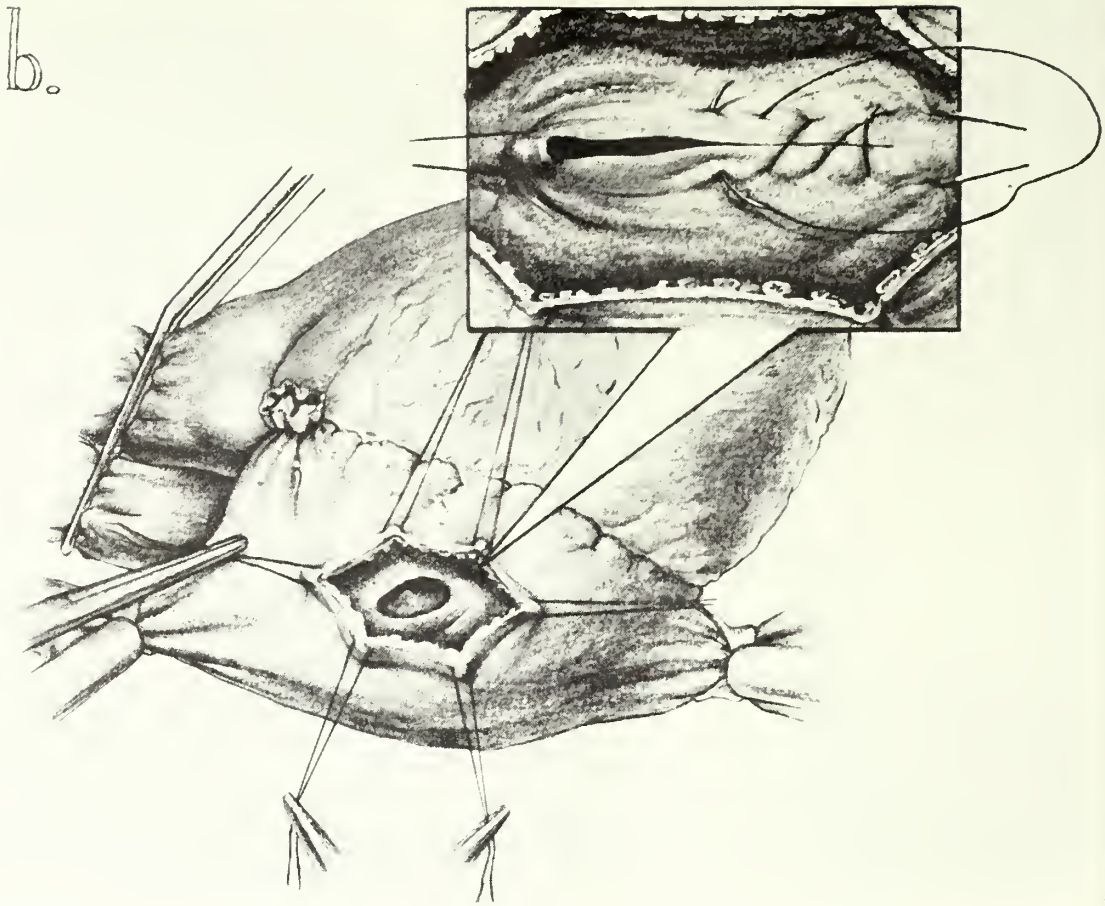

Figure 2. The atrium is open revealing a small localized ostium secundum type of atrial septal defect and its closure (inset). Aorta and pulmonary artery have been cross-clamped.

was then possible (Figure 2). The orifice of the coronary sinus and the openings of the vena cavae were noted. Under direct vision the atrial defect or defects were sutured with either continuous or interrupted non-absorbable material, depending upon the size and type of defect. If an opening of a pulmonary vein was noted in the posterior atrial wall, the anterior edge of the defect was sutured lateral to the vein opening. Before closure of the defect the left atrium was flushed with saline to remove air from the left side of the heart. Subsequently the right atrium was filled with saline and the atrial clamp reapplied (Figure 3). The vena caval tapes were released and a small amount of blood allowed to flow from the right atrium before complete closure of the atrial clamp. The clamp occluding the pulmonary artery and aorta was then released.

The thoracotomy wound was closed in the usual

TABLE IV
PREOPERATIVE CLINICAL FINDINGS OF PATIENTS WITH SINUS VENOSUS AND COMBINED PRIMUM AND SECUNDUM OSTIUM DEFECTS

					Catheterization			
							%	
Pt.	*Age*	*Sex*	*Symptoms*	*Physical Findings*	RV	PA	SAT FA	SF/RF
20. WC	4	M	Dyspnea & fatigue	Sys m̄ LSB	40/0	40/15	93	0.18
21. JM	14	M	Asymptomatic	Sys m̄ LBS; P2!	38/0	25/6	92	0.40
22. TR	16	M	Dyspnea & fatigue	Sys m̄ LSB; P2!	33/0	20/3	99	0.44
23. MW*	22	F	Dyspnea & fatigue	Sys m̄ LSB; P2! Dias m̄ LSB	30/0	25/5	100	0.26

*Combined primum and secundum defect

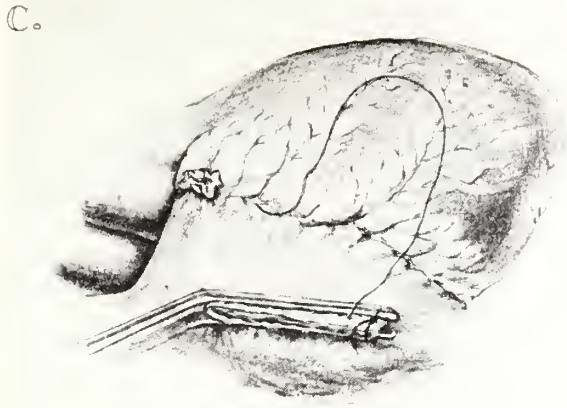

Figure 3. The atrium is being sutured after release of the aorta clamp and the caval tapes.

fashion in anatomic layers with intrapleural drainage.

In the three patients who presented an atrial septal defect and anomalous pulmonary veins entering the superior vena cava (sinus venosus defect), the proximal portion of the superior vena cava was converted into a divided cylinder by the placement of through-and-through sutures externally. This established a channel for the anomalous pulmonary vein to drain directly into the left atrium. These "channelizing sutures" were connected with sutures closing the defect internally.

Discussion

The clinical diagnosis of atrial septal defect is usually suspected from examination of the patient, the electrocardiogram, and fluoroscopy although it cannot be diagnosed definitely without cardiac catheterization. In our group of patients the majority of patients complained of exertional dyspnea, exertional fatigue, or they gave the history of frequent respiratory tract infection in the months or years prior to operation. Six were essentially asymptomatic. In several a mild degree of exertional cyanosis was noted. The auscultatory findings were variable although the usual signs were a systolic murmur of varying intensity along the left sternal border accompanied by an accentuated split second pulmonic sound and a pulmonic systolic thrill. In nine patients a diastolic murmur could be heard either in the aortic area along the left sternal border or at the apex, and in one (patient number 3) a continuous murmur was heard along the right sternal border.

Electrocardiographic findings were remarkably constant. In all there was either right ventricular hypertrophy or right axis deviation. An abnormal P wave was frequently present as manifested by increased width or height in the various limb leads. Several of the patients showed a first degree atrioventricular block and in several the P-R interval was prolonged. In some instances there was either an incomplete or complete bundle branch block.

The radiologic findings were those of increased blood flow to the lungs shown by increased vascular markings particularly at the hilum. At fluoroscopy pulsation of the pulmonary arteries or the so-called "hilar dance" was noted. The catheterization findings as summarized in Tables II and IV revealed a variation in right ventricular pressure from normal limits to moderate right ventricular hypertension (68/0). The pulmonary artery pressures similarly varied from normal to hypertensive ranges. In three patients there was a systolic gradient over 15 mm. of mercury between the right ventricle and the pulmonary artery, suggesting pulmonic stenosis. This was not an anatomic obstruction, but rather a functional type of stenosis reflecting increased pulmonary blood flow (patients 4, 9, and 19). In none of the patients was there any appreciable peripheral desaturation in oxygen content of the femoral artery, this varying from 90 to 100 per cent. The volume of blood estimated to flow through the atrial septal defect as compared to the systemic flow varied from a systemic flow/pulmonary flow ratio of 0.18 to 0.56.

Particular attention is directed to several of the anatomic variations of this defect noted at the time of operation. In several instances the defect was a multiple one with either fenestration or separate adjacent openings. Any attempt at closure of these

TABLE V

OPERATIVE FINDINGS. POSTOPERATIVE COURSE OF SINUS VENOSUS AND COMBINED PRIMUM AND SECUNDUM OSTIUM DEFECTS

Pt.	*Date*	*Size (cms)*	*Lowest Temp (F)*	*Aortic Occulsion Time*	*Postoperative Course*
20. WC	1-14-55	1.5	79°	7′	Uneventful. Bilat. SVC. RUL veins to RSVC
21. JM	10-12-56	2.5	81°	6′	Died 8 hrs. postop. IVC channelized to LA
22. TR	7-25-57	3	81°	4′ 30″	Postop. atelectasis relieved by bronchoscopy
23. MW*	10-31-56	I-3.0 II-2 x 1.5	80°	5′ 30″	Uneventful

*Combined primum and secundum defect

multiple defects by other than direct vision would result in an unsatisfactory repair.

Utilizing hypothermia a time limit of approximately 8-10 minutes at a temperature of 85° F. is within acceptable range for complete occlusion of the aorta. Within this period isolated and small defects of the ostium secundum type can be readily repaired. In three patients ventricular fibrillation occurred with release of the aortic clamp, but in each instance electrical defibrillation was accomplished without subsequent difficulty.

Patient's Problems

Special attention should be directed to several patients and their problems. Patient number 21 (J.M.) tolerated the operative procedure, but in an attempt to repair his sinus venosus type defect, the inferior vena cava was unintentionally channelized into the left atrium. Postoperatively he became cyanotic, hypotensive, and gradually expired. The technical problems posed by this defect are greater than the isolated type defect, requiring a longer period for successful correction. It is now our belief that if only one anomalous pulmonary vein enters the superior vena cava, no attempt should be made to correct this part of the anomaly. It has been the experience in several clinics that such an attempt to correct completely this situation frequently results in technical errors or thrombosis. In addition the amount of blood from one lobe of the lung is well tolerated by the right heart so that no operative correction other than the septal defect repair need be done.

Patient number 15 (J.H.) remained in congestive heart failure for most of his postoperative period. Although this was an extremely large defect and the patient was in an advanced stage of disease, his death two months later was probably attributable to disruption of the defect closure. At the time of autopsy the defect was completely open. Such a large defect is best closed by means of a plastic (Ivalon) patch although the insertion of such a patch requires a longer period of time than is readily available using hypothermia.

In one patient two separate defects were present. Although these were closed successfully using the technique of hypothermia, most surgeons are in agreement that an ostium primum type defect is best closed by insertion of a plastic patch with extracorporeal circulation.

The application of hypothermia for repair of atrial anomalies, ranging from ostium primum through fenestrated openings to the sinus venosus type, illustrates well its use in the correction of atrial septal defects. In unusual situations such as the presence of a previously undiagnosed ostium primum, an extremely large atrial septal defect, or an atrial septal defect accompanied by other anomalies, more time is required than is allowable using hypothermia. Insertion of a plastic patch or the definitive repair of associated defects demands a longer period of time. Accordingly, more recently we have elected extracorporeal circulation as the procedure of choice for the closure of atrial septal defects.

Since June, 1958, through June, 1959, there have been 23 patients with atrial septal defects operated on using extracorporeal circulation without any mortality. These defects have been of the ostium primum (two patients), the ostium secundum (19 patients), and the sinus venosus (two patients) types. There has been neither morbidity nor mortality in these patients, and the necessary suturing may be done with deliberation without consideration of a "permissible time" as is the instance with hypothermia.

Indications for Operation

Due to the relative safety of this operative procedure and the almost certainty of the individual to manifest an increasing amount of cardiac difficulty with the progress of years, we believe that the diagnosis of an atrial septal defect is indication for its operative repair. This is best accomplished in the young individual before secondary changes in the pulmonary vessels have occurred causing increased pulmonary resistance.

The diagnosis of ostium secundum as differentiated from an ostium primum defect is best made by the electrocardiogram. In those individuals with an ostium secundum, there will be signs of right ventricular hypertrophy and right atrial enlargement. In the individuals that we have encountered with ostium primum, signs of left axis deviation have been present. The cardiac catheterization findings are suggestive, but not always definite in distinguishing between ostium secundum and ostium primum.

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Frontiers in Prepayment

The Future of Health Insurance

JAMES E. STUART, ***Rochester, New York***

There is hearty and encouraging significance that the theme of this centennial celebration is "Medical Frontiers." The significance lies in the fact that a century ago this state was itself a frontier, and the founders of this Society were pioneers carving civilization out of raw wilderness. Now, a hundred years later, their descendants are still looking for new frontiers to conquer.

A good deal has happened in the last hundred years. All notions supplied by television westerns to the contrary, Kansas covered wagons are to be seen only in museums. And Kansas has become a good deal more than merely a vast prairie boiling with wheat and corn, a notion entertained by provincial easterners whose westward view is a bit obstructed by office buildings.

The frontiers that challenge Kansans today are the same that challenge the nation. Today's covered wagon is the cyclotron, the microscope, and the space rocket. Science is our frontier, and the pioneer who crosses that uncharted area is seeking not only new scientific gifts, but also new social and economic forms that will best organize the distribution and use of these gifts.

There are few who see this any more clearly than Kansans, especially as it refers to the field of health. Your own Dr. Franklin Murphy, Chancellor of your State University, has pointed out that medicine is a blend of physical, natural, and social sciences that has been profoundly affected by the social, economic, and scientific revolution through which this country has been passing in the past decade. For those "apostles of gloom and doom" who look upon this change with alarm, he offers this question: "Do these people really believe that the remarkable changes in industrial technology, transportation, communication, and health care, brought by the age of science, could leave our social, economic, and cultural institutions unaffected?"*

The obligation to meet changing needs and social patterns has not been lost on Kansas Blue Cross and Blue Shield, whose Member Council Program has pioneered for the nation in giving the public a more direct voice in Plan affairs. New frontiers in health prepayment are being explored by the Kansas Blue Cross-Blue Shield in the pilot experiment being conducted in Lyon County, where standard coverage is being extended at no extra cost for home care of the aged sick. The policy of Kansas Blue Cross in providing continuous enrollment for non-group benefits shows an awareness and concern for the special problems in health care coverage that changing times have brought about, as they refer to the particular needs of Kansas and to the needs of the nation as a whole.

There is, then, good reason to take encouragement from the fact that Kansans still retain their pioneer spirit. It is good that they do so, because the horizons in medicine and health prepayment are as long, as beckoning, and as rewarding for the adventurous as any frontiers ever were.

Where Do We Go From Here?

But, before moving on, it is always good to take a look backward. The question, "Where do we go from here?" has an echo which replies, "From where have we come?"

The Encyclopedia Brittanica, in an article on hospitals written by a well-known authority of the time, defines hospitals as a place for the care of the sick, but concludes sourly and not without good reason that for most cases of illness and for the best hopes of recovery, the advantages of hospital care were open to question. For its time this view was medically sound. Hospitals then were charitable institutions which provided care, some pity, and a place to die for those "sick poor" who could not afford care in their own homes.

Encyclopedias are storehouses of stubborn fact, leaving prophecies to others. If it were otherwise, the Encyclopedia Brittanica might have predicted accurately the revolution of science, invention, concentration of facilities, specialization, and industrialization which the nation was to undergo in the next 50 years and which hospitals were to share.

The concept of a hospital changed. It was changed by new techniques of antisepsis, anesthesia, x-ray, laboratory procedures, medication, and scientific care. The new advances were given impetus, sadly and ironically, as were the advances in industry, by the fortunes and heightened experiences of war. Doctors, surgeons, and technicians with more and better training, together with new and expensive equipment,

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Mr. Stuart is Executive Vice President of the Blue Cross Association. He delivered this address before the Kansas State Medical Society's Centennial General Session in May.

* "Adapting to the Inevitability of Change" by Franklin D. Murphy, M.D., HOSPITALS, J.A.H.A., February 1, 1956, page 36.

found a logical setting in the hospital. The hospital emerged as the only place in the community which could provide the space, organization, and facilities for the skilled application of all the new developments in medical science.

It was no longer the best informed choice to stay at home when in need of the wide range of services found only in the hospital.

However, this new situation faced economic and social forms that were inadequate to deal with it. It had become possible to bring skilled care and healing to a wider range of people with a broader scope of afflictions; however, the existing methods of financing and distribution were still keyed to the past. The new, advanced hospital care was accessible only to the very poor or the very rich—to the rich by privilege of being able to pay for care and to the indigent poor according to ancient customs of public and private charity. The overwhelming bulk of the people, ineligible for charity, often found the new health resources of the hospital financially out of reach.

Two Sides to Problem

It should be emphasized that the problem had two sides, even as it has on a different level today. It was not only a question of making hospital care accessible to more people, but also of making more money available to the hospitals, in order to finance the additional scientific progress and advancing standards of patient care that the progress so far had merely suggested.

A new social mechanism had to be introduced, as up-to-date as medical progress itself, as pertinent to the Twentieth Century as the new methods of mass production in industry.

It is a matter for pride that hospital people were among those who came up with the answer—that people pay voluntarily for their own care through the device of prepayment. While the average person could not be expected to foot a hospital bill out of his pocket at the time of need (a consideration made critical by the Great Depression), it was quite reasonable to expect that he could budget small payments while well, as an advance against times of need. This assured him of adequate hospital care when he needed it, regardless of its cost, and it provided a necessary and continuous source of income for the hospital.

Prepayment was, and remains, no less essential for those who consume health services as for those who provide it.

As an economic device, prepayment was admirably appropriate to the times. Many other essentials of modern life besides hospital care had become too expensive and complicated in their manufacture for out-of-pocket payment. Production of such durable goods as cars, refrigerators, and radios had become the basis for a new surge of well-being and wealth—provided new ways could be devised to pay for them. The monthly payment was becoming an economic way of life, with people enjoying the use of their new products while paying for them in supportable installments. The new markets created by installment buying furnished the basis for unprecedented wealth and production and provided more good things of life for more people.

Prepayment had a difference in that it was an investment in a service that would be available when needed, rather than a method of paying after purchase. Yet it took second place to no other economic device in the matter of releasing purchasing power and creating the confidence and security that were needed for the new surge in living standards.

We have had prepayment for about 25 years now. It is a success, a fact vigorously attested to by the insurance industry which claimed in the early days that it could not be done, but hastened to invade the field when Blue Cross demonstrated that it certainly could be done. Today, about 70 per cent of Americans have some form of hospitalization coverage.

Prepayment is here to stay. It is one of our economic institutions. In most people's minds prepayment of health care costs is inseparable from the concept of health care itself. The nation's labor movement, fortified by court decisions, has made prepayment a "working condition," negotiable under collective bargaining, and to a large extent the benefits and programs won in union contracts have set the pace and pattern for the rest of the country. While coverage of hospital costs commands the larger share of prepayment, an increasing number of people look toward it as a device for managing the costs of other areas of health services.

The only questions people are asking about prepayment today are: "What range of health services should it cover?" and, "Can the job that needs to be done continue to be accomplished by voluntary means?" There is practically no disagreement that a major job of covering health care must be done and that prepayment is to bear the brunt of it.

We cannot turn back the clock. Prepayment can only grow, both as regards to the services it covers and to the numbers of people it protects. Either we will grow with it or be overgrown by it.

Our Frontier

Let us examine some of the considerations that indicate the nature of the decision already made by the public, the scope and urgency of the job that

needs to be done, and thereby, the map of the frontier we must traverse. These considerations are inescapable; they come thronging on the heels of scientific and industrial advance; they come hand in hand with a hundred million automobiles, with the new suburbs, with automation, with cobalt guns and antibiotics and new vaccines, with jet planes and the splitting of the atom.

The first consideration that must be weighed is the assumption prevailing today that health care has long ceased to be a matter of private luxury. It has become a necessity, a fourth necessity, if you will, in company with food, clothing, and shelter. It is assumed to be so by the enlightened public that sees in health care a weapon for personal survival against age-old enemies of disease and a tool for the richer fulfillment of a longer span of life. It is assumed to be so by the people's leaders in government who recognize health as a national resource of no less importance than trees, rivers, ores, and armaments. Health is an essential for the nation, and those who are most fully aware of the social aspects of health know that the nation's welfare cannot tolerate too unequal a distribution of health care. A healthy man cannot afford his neighbor's disease.

Necessities to life are soon made rights. There is a growing assumption that health care is the right of all and that each new marvel of medical healing and care is obligated to serve all who need it. The assumption is not entirely alien to those who provide health services, as the rich tradition of the Hippocratic Oath bears witness.

There are abundant precedents for the government to take over the provision of security in health care should voluntary methods be found wanting. It can do this without changing any basic law. The social security legislation of 1935, ratified at every national election since, amounts to an unwritten amendment to the Constitution saying in effect that the Federal Government has a responsibility for the welfare of the individual citizen. Our national system of social security protects those who, by reason of age, unemployment, loss of the breadwinner, or physical handicap, cannot provide for themselves. Aside from considerations of individual need, the additional function of maintaining the nation's purchasing power and shoring up fluctuations in the economy is now recognized.

Prepayment was a voluntary and parallel movement to what was happening in government in response to the search for security and stability. People wanted, in times of feast, to budget against times of famine, and they were looking for the right agency by which to do this. So far in the matter of health security, voluntary prepayment remains the people's choice, and this is now the only country in the world where that is true.

Can it remain so for long? The answer to that will be resolved not by the chanting of outworn shibboleths, not by appeals to emotion and calls to defend crumbling barricades, but only by a clear-cut demonstration that voluntary prepayment is a viable, young, adaptable institution that can do as good, if not better, a job than the government in providing modern health care to everyone who needs it.

New Facts

Whether or not it can make such a demonstration depends upon its ability to measure and solve certain new facts and problems that contemporary life has presented to it.

The fact is that people want the best and will ultimately find ways of securing the most thorough health services that modern progress can provide. If health care is essential, it is equally essential that the best quality of it be provided and that the most efficient means of covering its cost be utilized.

The fact is that such demands for more and better service take place in a time of skyrocketing costs, with even greater increases in costs ahead and even greater public resistance to the rising rates that these costs make necessary. Hospitals operate on the narrow edge of solvency. Prepayment agencies are dipping deeply into reserves. Insurance companies are toying with various forms of deductible and co-insurance devices in the attempt to control costs, only to find them further spurs to inflation. And in the face of these facts, every health facility is crowded to capacity by a public demanding the full measure of modern health care.

And yet the fact is that rising costs are the price of progress. The more complicated equipment, more extensively trained personnel, and more elaborate facilities needed for modern health care are bound to cost more. That would be the case regardless of the means of prepayment and financing, whether supported through taxes or through voluntary allotments. There is every indication that the public is prepared to pay the cost of progress, provided it is both necessary and reasonable. But there is also every indication of a growing public impatience with that part of the cost which is unnecessary and unreasonable and which suggests other motives than public service on the part of those who provide services and coverage.

Surely the question of necessary and reasonable cost, plus the best care that modern medical science offers, can be provided by our American system of health services which, if it could be classified as an industry, would rank among the largest! Today almost two million people are directly engaged in

health services. In terms of personnel employed, the 1950 census listed health services seventh among the 77 categories in the industry classification list. It was one of the fastest growing, increasing at a rate of about 59 per cent during the decade, 1940-50, compared to an average of 25 per cent rate of growth for all industries. In 1957 Americans spent out of personal income about $15 billion for medical care. This is very big business indeed. While health service will always remain a highly personal and individual process at the contact point, there is yet room within this vast enterprise for the further coordination of services, pooling of facilities and skills, and the wider distribution of "product" that industry as a whole has found essential to its own survival as a voluntary mechanism.

Blue Cross-Blue Shield vs. Governmental Alternatives

The question of necessary and reasonable cost to cover the best care under voluntary conditions can also be solved by existing agencies, provided they meet the following criteria by which they will be judged against governmental alternatives:

1. *Accessibility to all self-supporting people.* As long as the providers of health service assume a community responsibility to serve all the sick, without reservations regarding patient status of health, age, or employment, so must prepayment do likewise. Prepayment must make needed health services which are available to all, accessible to all—the aged, the unemployed, the casually employed, the self-employed, the disabled. Prepayment cannot survive for long as a voluntary institution if it limits its services only to young, healthy, and employed people.

It is a familiar story. To make health services accessible to more people is to make more money accessible to health services. Programs that skim off only "favorable risks" may seem to provide attractive rates for the choice patients and handsome returns to the carrier or insurer—but only at the damaging cost of making the provider of health services a co-insurer and contributor to the "bad risks" who make up one of the heaviest portions of the health service load.

Favorable rates to favorable risks put an untenable load on health facilities and on the community which must carry the burden of those denied favorable consideration in the matters of rates and coverage. Support of programs which place major reliance upon "group experience-rating" is shortsighted, not only for those who provide health service, but also for those who consume it. People who scramble for overweighted "good risk" considerations only penalize themselves when the time comes, as it almost inevitably does, that their own risk status changes. Both self-interest and social responsibility indicate the choice of prepayment rates that are related to the total experience of the community and to the needs of the community's system of health services.

The broad pooling of risks involved in such an outlook is at the same time the only viable means of solving the question of reasonable costs, and the major question before us today is whether we are going to choose voluntarily to make such a broad pooling of risk and resources or to have it done for us. It must be done, one way or the other.

2. *Coverage of essential services.* What are essential services? This is an expanding concept. At one time prepayment covered only hospital services. Now it covers much of the cost of surgery and regular diagnostic and medical care. Certainly with regard to the hospital, people have come to regard all services provided there as a "package" to which the holder of a prepayment membership card is entitled, without extra charged by either the hospital or the carrier. The "package" notion is suited to the needs of today's and tomorrow's patient, who tries by regular monthly payments to cover himself against contingencies of illness and disaster. He tends to see his hospital (and, to a growing extent, other health facilities) as a unit of service whose expense he has borne for a long time prior to need.

He expects his benefits to be represented by service, a concept sometimes violated by hospitals who fragment their services for the purpose of making extra charges. It is violated by carriers who provide not-cash indemnities that do not cover the cost of needed care, thus placing the onus of collection upon the provider of health service and in effect making the provider a co-insurer.

Part of the principle of service benefits is the condition that the provider of services be paid directly by a "third party," in accordance with agreements that relate to the needs of the community. Service benefits will ultimately be provided. The major question is: "Will voluntary agencies provide it?"

3. *Continuous coverage.* The same factors affecting rates and accessibility apply to the standard that any prepayment program worth support will continue its coverage regardless of changes in the subscriber's status of age, health employment, or place of residence.

This is a principle that Blue Cross-Blue Shield has followed from the very start. Having carried his prepayment through periods of employment and good health, Blue Cross-Blue Shield assumed that the patient expected not to be abandoned when his status changed. While such a principle seemed obvious, necessary, and basic, other insurers have refused until

quite recently even to consider it, causing it to be an adjustment reluctantly made in response to the force of public opinion and, in some places, legislation.

Today three and one-half million people over sixty-five have Blue Cross coverage, which is about one-fourth of those Americans in that age category. It represents two-thirds of those over sixty-five who have any coverage at all. The high utilization of this group makes it an expensive load, but Blue Cross has shouldered it because not to do so was unthinkable, contrary to its primary mission of public service. Had commercial insurance done likewise and had it done as well, the current pressure to extend Social Security to cover the health needs of the aged would be lessened, if not eliminated.

4. *A three-way partnership.* The prepayment program fit to inhabit tomorrow's medical frontier will enlist in policymaking functions, representatives of the public, the providers of service, and the prepayment agency—on a basis of equality. This three-way partnership of public, provider, and carrier is vital if all three are to be served.

5. *A national outlook.* Jet planes, telephones, radios, and television are making one big community of America. Financial interests, management concerns, and labor affiliations criss cross our continent and now cross half an ocean. There is scarcely a community left but what its economic life is determined elsewhere. Patterns of health programs and benefits are determined by nationwide, pace-setting management and labor forces. Legislation on a national level is becoming one of the strongest factors in setting trends for health care and prepayment. Every session of Congress since the war has passed legislation that has helped to expand the prepayment idea. The prepayment program that finally emerges as the program of choice must be able to furnish the national perspective and national contacts to cope with these factors.

6. *Conscientious trusteeship of the consumer's money.* While the high cost of progress is a necessary and supportable one, the high cost of inefficiency and misuse is definitely not. A prepayment program which regards itself as an agent of the community, as a trustee of funds allocated carefully for an essential public function, will take care not to abuse that confidence, and it will try to make a creative contribution toward the goal of wisest use of those funds.

Here's What It Can Do

There are several things it can do, in fact must do. As part of a partnership which also includes the public and providers of service, it can help establish effective and voluntary controls on the utilization of services and the most economic management of facilities. It can provide much skill, knowledge, and integrity to the job of helping to plan the whole community's health resources, for wise planning is a major part of efficiency and economy.

It can make its considerations of costs and rates serve the proposition that prepayment must be within the reach of people of modest means.

It can help persuade many providers of service that no new money is created by prepayment, that the funds allocated for health care by the subscriber have been paid out often under budgetary strain and for the purpose of covering a time of need, and that there is no warrant for upward adjustments of charges to persons covered by prepayment.

And prepayment must keep its own house in order. If is is to win the confidence of the public and the endorsement of the providers of health service, there must be no question that the maximum amount of the monies entrusted to it must be used for health care and a minimum for administration, promotion, and acquisition. Its major motive for being in business must be service to the people.

These criteria then are the ones that a pioneer prepayment program must meet if the voluntary principle in prepayment is to survive. Meeting them is the only way to meet the growing demands of the people and to demonstrate that the voluntary dollar can go farther than the tax dollar.

Who Can Meet These Criteria

They can of course be met by government, a course which remains open pending the failure of other agencies.

They cannot be met by commercial insurance unless the insurance industry assumes community responsibility for providing the kind of protection to people that meets their needs. As long as commercial programs are based on fixed indemnities that have more appropriate reference to questions of accident and property damage liability than to the health of the nation, as long as commercial coverages are limited mainly to "good risks" groups during employment and in good health, the criteria listed above will find no answers in the traditional insurance approach.

The criteria CAN be met by agencies that operate under the kind of public franchise afforded Blue Cross and Blue Shield. Blue Cross and Blue Shield are closest to meeting these criteria today. Given an increased willingness to change on their own parts, Blue Cross and Blue Shield can meet the full measure of these standards if the providers of health service want it so and if they are willing to support, defend,

and help develop the kind of service benefit, community-orientated operation that the non profit plans symbolize.

This must be stressed. Support by the providers of health services is critical. If the providers do not endorse and fight for a voluntary prepayment program designed to their needs, why should the public do so?

The public wants to establish a system of financing health service that ends forever the crises of availability that have plagued it in the past. It wants to do this voluntarily if possible and by other means if impossible. The public has made its desires felt in this matter, in some areas more sharply than in others, and the trend is unmistakable. It will be felt with increasing urgency as new industrialization and improved standards of living find expression in higher levels of education and social awareness.

One hundred years ago, at about the time celebrated by this centennial, Abraham Lincoln said, "The legitimate object of government is to do for a community of people whatever they need to have done but cannot do at all, or cannot do well for themselves, in their separate and individual capacities." He added, "Americans turn to the arm of government when the reach of voluntary action is not long enough."

Just a few years ago, the President's Commission on the Health Needs of the Nation declared, "Access to the means for the attainment and preservation of health is a basic human right."

Necessity, rights, and life will be served!

Blue Cross Association
Rochester, New York

Diabetic Blindness Related to Type, Length of Illness

Blindness as a complication of long-term diabetes may be prevented by early detection and adequate control of the disease, a new study has suggested.

The study, conducted at Joslin Clinic, Boston diabetes detection center, lends support to the "growing conviction" that complications of long-term diabetes are related to the degree of control maintained over the years.

Writing in the current *Journal of the American Medical Association,* Drs. Howard F. Root, Stanley Mirsky and Jorn Ditzel said the prevalence of blindness due to diabetes has been rising as more persons survive diabetes for long periods.

Diabetes is a disease in which the body's utilization of sugar is impaired. The usual treatment involves diet control and injections of insulin, a substance necessary for the breakdown of sugar in the body.

Diabetes appears to seriously disturb the body's whole metabolism (the physical and chemical changes in the body). This disturbance apparently plays a role in the development of a degenerative eye condition known as proliferative retinopathy in which there are changes in the retina and blood vessels. It may lead to blindness.

The doctors studied the records of 847 persons who developed proliferative retinopathy during the last 30 years. They found that none of the patients had good control of diabetes through diet or insulin therapy from the onset of the disease.

All had severe diabetes of long duration, usually beginning at a relatively early age.

However, many other patients are known to have survived diabetes with onset in childhood for periods of 20 to 30 years without any evidence of retinopathy when their diabetic treatment had been adequate.

The authors feel that proliferative retinopathy can be prevented and postponed by early diagnosis and continuous control. They said physicians are "obligated to plan treatment and supervise management in such a way as to provide the best control attainable at the present time. . . ."

The study showed:

—That the 847 patients had diabetes for an average of 17 years before developing proliferative retinopathy.

—That nearly half of them had diabetes before they were 20 years old and the rest before the age of 40. Most of them had difficulty in controlling the disease.

—That among the last 206 consecutive cases there was no case of blindness in a patient under 20 years of age, but that 25 per cent of those over 20 were blind.

Acoustically Handicapped Children

A Ten Year Summary of the Kansas Institute for Parents and Their Acoustically Handicapped Children

JUNE B. MILLER, Ed.D., *and*
C. ARDEN MILLER, M.D., *Kansas City*

Through the combined efforts of the Hearing and Speech Department of the University of Kansas Medical Center and the Kansas State School for the Deaf, an institute for parents and their deaf or hard of hearing children has been held each year for the past ten years at the State School for the Deaf in Olathe, Kansas. This report summarizes case histories of all of the children evaluated at the Institute during this time.

The purposes of the Institute are: (1) to carry out earliest possible medical diagnosis, psychological and audiological tests, social and emotional evaluations; (2) to make recommendations for further examination, study, and educational placement; (3) to help parents understand some of the problems concerning deafness, to give them techniques and methods for relating to their acoustically handicapped children and for establishing communication with them.

The purpose of this paper is to review the medical, psychological, audiological, and educational histories of all children who have attended the Institute, and to study the recommendations of the staff. The data were gathered from the reports of the pediatrician, the psychologist, the audiologist, the otologist, the nursery school teacher, the teacher of the deaf, the social worker, the group discussion leaders, and the nutritionist. Individual acknowledgments to participants would occupy excessive space, but we are exceedingly grateful for their contributions.

The Program

Each year the parents and children were asked to arrive on Sunday afternoon to be assigned to rooms, meet the staff, and have the week's program outlined. The programs were changed somewhat each year in an attempt to help the parents and children gain more from the week's experience.

Starting on Monday, the children were placed in the nursery school with an experienced nursery school teacher and a number of assistants. During the week each child was examined by the pediatrician, otologist, audiologist, and psychologist. A medical social worker and nutritionist interviewed the parents. The children were observed in many types of play situations. If a child did not cooperate or was unwilling to go with an examiner on the first day, he was not forced to do so, but repeated attempts were made. Usually, by the end of the week, examinations had been carried out on all enrollees. Upon completion of all tests and observations, the staff met to discuss each case and to make recommendations.

While the children played each day, the parents attended lectures and discussions concerning the development of communication through speech, speechreading, auditory training, and language. Children from the Preschool for the Deaf at the University of Kansas Medical Center and the School for the Deaf in Olathe demonstrated their ability to speechread, speak, read, write, and use their residual hearing.

The parents also attended lectures by the otologist concerning the anatomy of the ear and the causes and types of hearing losses. The audiologist discussed types and degrees of hearing losses and the audiogram and what it meant. Various types of hearing aids were explained. The pediatrician discussed the growth and development of children. Some years a psychiatrist talked to the parents about emotional problems. Other years the pediatrician took over this part of the program. During the first few years of

This is a review of the case histories of 160 children who attended the Institute for Parents and Their Acoustically Handicapped Children from 1949 to 1958 at the Kansas State School for the Deaf.

This paper describes the program carried out for parents. It has also reported findings concerning the children with regard to age; age at recognition of deafness; degree of deafness; use of hearing aids; medical findings; psychological evaluations; language development; and staff recommendations.

From the Department of Hearing and Speech, the Children's Rehabilitation Unit and the Department of Pediatrics of the University of Kansas Medical Center.

TABLE I
AGE OF ATTENDANCE

Year	*Mean*	*Standard Deviation*	*Number*
1958	40.66	10.2	22
1957	44.65	11.6	17
1956	36.73	7.3	15
1955	41.00	6.6	19
1954	43.66	10.1	15
1953	41.38	6.0	16
1952	37.50	12.0	14
1951	39.05	12.8	18
1950	43.66	10.1	14
1949	42.70	13.5	10
Total in Months	40.94	10.9	160*

* Total number in attendance at Parent Institute

the Institute parents had so many questions about feeding problems that a full-time nutritionist was asked to participate as a part of the team. The nutritionist discussed dietary needs and how they might be met. A psychologist explained the meaning of psychological tests. A social psychologist, trained in group work, was also a member of the team. She guided the parents in group discussions and assisted them in role-playing.

The superintendent of the State School for the Deaf outlined the history of education of the deaf, explained the educational approach, the upper grade level, and the national college for the deaf. The principal of the school took the parents on a tour of the school, described the pre-vocational program as it was carried on in the majority of residential schools for the deaf, and explained vocational training through the Office of Vocational Rehabilitation.

Toward the end of the week each member of the staff presented his findings and observations. After discussing each case, the staff member having the greatest rapport with the family was asked to present the staff findings and recommendations to the parents. Many fathers who had not been able to attend the Institute came for the final meeting to hear the recommendations.

In 1949 no fathers attended the entire week's sessions. However, in an evaluation questionnaire the mothers recommended that fathers be encouraged to attend. In 1958, 11 fathers attended the entire week's program and the majority of the others attended the final session on Saturday morning.

The Children

During the ten-year period 160 children and their parents were enrolled. Fifty-four per cent of the children were males and 46 per cent were females. They ranged in age from 14 months to 71 months with a mean age of 41.1 months and a standard deviation of 10.9 *(Table I)*.

Residence

Of these 160 children 81 per cent were from Kansas and 19 per cent were from Missouri. Since the program was sponsored by Kansas, the children from this state were accepted first. It was felt by the staff that 20 children could be accepted each year. Therefore, if the group was not filled by two weeks before the Institute, children from the greater Kansas City area of Missouri were accepted, and finally children outside of this area were accepted if necessary to fill the quota.

Referrals

At the first Institute only one child had been previously seen in the Medical Center Hearing Clinic. Many parents that year had learned of the Institute through publicity about the program in the newspaper. In 1958 all 22 children had been seen previously in the Hearing Clinic at the University of Kansas Medical Center. For the entire period under study, 66 per cent of the children had been seen in the clinic prior to the Institute. The problem of referrals has been dealt with in another paper.[1]

Recognition of Deafness

The parents were questioned about the age at which they recognized deafness. This ranged from two months to 48 months with a mean of 17.8 months, and a standard deviation of 9.0 for 155 cases. Of the five not recorded, four were deaf as a result of postnatal illnesses and information was not available for the fifth *(Table II)*.

Severity of Hearing Loss

Fifty-six per cent of the children were found to have a profound hearing loss (75 db or greater). Thirty per cent had a hearing loss (55 db to 75 db). Thirteen per cent of the children had a moderate hearing loss (25 db to 55 db), while two children, or one per cent, were found to have normal hearing but other handicaps.

Pure tone audiograms were recorded on 38 per cent of the children prior to, or during, the Institute.

Abnormalities of Medical History And Causes of Hearing Loss

From each case history the staff tried to determine a probable cause of hearing loss. Past medical histories were given by the mother at the Institute, or reported by her on questionnaires submitted about

a month prior to the meeting. Birth records from the attending physician were requested only at the last Institute. It should be recognized that in many instances data were collected retrospectively and were not uniformly complete, particularly in the early years of the Institute. Data are summarized in *Table III*.

Twenty-five per cent of the cases had no abnormalities of medical history nor other conditions even suggestive as to the cause of deafness. All of these children appeared to have been deaf from the time of birth.

Thirty-four per cent of the children had some abnormal prenatal factor. In some instances (e.g. maternal rubella in the first trimester) there is a clearly established relationship between the factor and deafness. In other instances (e.g. threatened abortion) a causative significance cannot be supported, yet some of the relationships may be of future interest.

Those children classified as having hereditary deafness were deaf from the time of birth and had mothers, fathers, aunts, uncles, or siblings who were also deaf from time of birth. Hereditary deafness was thought to be the cause in nine per cent of the cases.

Three children had congenital anomalies known to be associated with hearing loss. Two had the Waardenburg syndrome, and one child had congenital atresia of the auditory canal. Two other children had serious congenital anomalies involving the skeletal system which in themselves would not account for deafness unless they were associated with nonapparent anomalies of auditory mechanisms.

Mothers of fourteen children reported having had rubella during the first trimester of pregnancy.

TABLE II
RECOGNIZED DEAFNESS

Year	*Mean*	*Standard Deviation*	*Number*
1958	18.2	7.9	21
1957	22.0	10.6	16
1956	18.8	8.3	15
1955	19.0	8.7	18
1954	23.0	8.8	13
1953	16.5	7.9	16
1952	13.0	6.2	14
1951	17.0	9.3	18
1950	17.0	11.5	14
1949	16.0	5.8	10
Total in Months	17.8	9.0	155*

* Total reported

TABLE III
ABNORMALITIES OF MEDICAL HISTORY AND POSSIBLE CAUSES OF HEARING LOSS

	Number	*Totals*	*Per Cent*
No abnormalities other than deafness		40	25
Prenatal factors		55	34
Hereditary deafness	15		
Congenital anomalies			
Congenital atresia of auditory canal	1		
Waardenburg syndrome	2		
Congenital skeletal anomalies	2		
Maternal rubella during first trimester of pregnancy	14		
Maternal nausea and vomiting of extreme degree during pregnancy	13		
Threatened abortion	8		
Natal factors		20	13
Difficult delivery	15		
Cyanosis after delivery	5		
Postnatal factors		13	8
Meningitis	2		
Chronic otitis media	2		
Excessive neonatal jaundice	9		
Unconfirmed diseases and "post hoc" factors		32	20
"Meningitis"	11		
Unexplained high fever	12		
Mumps	1		
Whooping cough	1		
Scarlet fever	1		
Red measles	3		
Epidemic diarrhea	1		
Severe eczema	1		
Head injury	1		
		160	100

Certain prenatal conditions such as extreme vomiting in the first trimester and threatened abortion occurred with such frequency (13 per cent) that they are listed separately. The importance of these conditions in causing deafness is unknown.

Fifteen of the children were born following difficult labor, i.e., prolonged labor, breech births, or instrument deliveries. An additional five children were reported to have been cyanotic and were placed in an incubator with oxygen immediately after birth.

Two children were known to have had meningitis and to have acquired speech and language before the illness; two others had acquired hearing losses from chronic otitis media. Nine children were reported to have had neonatal jaundice which was present at birth or unusually severe. Seven of these

TABLE IV

AVERAGED INTELLIGENCE SCORES

Classification	*IQ Score*	*Number*	*Per Cent*
Superior	130-above	4	3
Above average	120-130	2	1
Bright average	110-120	19	12
Average	90-110	87	54
Low average	80-90	30	19
Below average	70-80	3	2
Mentally retarded	70-below	13	8
Not tested		2	1
Total		160	100

children were born to Rh negative mothers and Rh positive fathers. All of these conditions are known to be related to deafness.

Twenty per cent, or 32 children, had various illnesses from which parents dated the onset of deafness. Because the children were so young when they were ill, it was not possible in the majority of cases to be assured that the child had normal hearing prior to the illness. Many of the illnesses reported by parents are known to cause deafness. For example 11 of these cases were reported to have had meningitis. One child appeared to develop deafness following severe mumps. These conditions may actually have been the cause of deafness in these children. In 12 other cases the family blamed an unexplained high fever between the ages of six and 24 months as the cause of deafness. There were other illnesses reported by parents as dating the onset of deafness which are of doubtful or uncertain significance. Among these were whooping cough, scarlet fever, red measles, epidemic diarrhea, extremely severe eczema, and a head injury.

Further Use of Data

The data can be examined in other ways. There were 45 children (28 per cent) who had some condition of medical history or physical examination which might reasonably be regarded as having caused hearing loss. These conditions were hereditary deafness, Waardenburg syndrome, atresia of the auditory canal, maternal rubella during the first trimester of pregnancy, meningitis which was confirmed by reliable medical reports and which dated the onset of deafness in a child who definitely had heard previously, chronic otitis media, which fulfilled the same etiologic criteria as stated for meningitis, and excessive neonatal jaundice. Among the 45 children for whom a probable etiology of deafness could be assigned, the prenatal causative factors predominated (61 per cent).

There were an additional 32 children (20 per cent of the entire group) who had some postnatal condition which might have caused hearing loss, or which the parents believed dated the onset of hearing loss. Data were not reliable either for confirming the diagnoses in retrospect or for making certain that the children actually had heard prior to the onset of the condition blamed by the parents as causing loss of hearing. In order to avoid "etiologies" which were blatantly *post hoc ergo propter hoc,* these children are grouped with those who were deaf due to unknown causes.

Another 27 per cent of all the children had some condition which might be associated at times with neuronal damage, but which is not specifically associated with deafness. Among these conditions were congenital anomalies of the skeletal system, maternal nausea and vomiting of an extreme degree during pregnancy, threatened abortion, difficult delivery, and early neonatal cyanosis. These children are grouped with those of unknown etiology, making that group 72 per cent of the total.

In summary there were 28 per cent of the children for whom the probable etiology of deafness was known; there were 47 per cent with a clue as to a possible etiology; there were 25 per cent in whom the cause of deafness was completely unknown.

Physical Examinations

The physical examination revealed complications or deviations other than deafness in 32 per cent of the group. Twenty-three children had some visual defect. Three of these children demonstrated problems of such severity that they were almost blind. Two children with the Waardenburg syndrome were found (one blue eye, one brown eye, a shock of white hair, different colored eyebrows and eyelashes, and deafness). Ten children had strabismus; eight others had undiagnosed ocular defects which needed definitive diagnosis by an ophthalmologist. Four children had definite cerebral palsy and 12 others were so clumsy that they were referred to the Cerebral Palsy Clinic for further study. Twelve children had congenital heart defects, ten of which were related to maternal rubella infection during pregnancy.

Emotional Problems

Evaluating the emotional problem was perhaps the most difficult task. The staff felt that some degree of worry and frustration could be expected in any family with a handicapped child. However, 33 per cent of the cases were considered by the staff to

show varying degrees of emotional problems involving the child, his parents, or both in excess of what might be expected from usual worry and frustration. In the absence of expert psychiatric consultation, no attempt was made to diagnose or define precisely the emotional problems; the psychologist, social workers, pediatricians, and others attempted only to arrive at some unanimity on whether or not problems existed. Three children were felt to be suffering from serious emotional disturbances which needed immediate psychiatric attention. For 18 other cases the staff recognized that emotional problems existed within the family or child to a degree that was obvious, but not actually critical. For 22 other cases and their families, the staff considered the emotional problems not severe, but of a degree that might prevent the child from adjusting and benefiting optimally in situations involving special training. Direct referrals for psychiatric aid were made for 14 cases. For 29 others who needed help, there were no facilities available within a hundred-mile radius of their homes. This then became another of our unsolved problems. It was one thing to recognize the emotional problems. It was an entirely different thing to get help for these families within their home communities and within their financial resources.

Intelligence Tests

During the ten years of the Institute, four psychologists participated and gave a wide variety of tests: the Cattell Infant Intelligence Scale, the Leiter International Performance Scale, the Arthur Point Scale of Performance, the Nebraska Test of Learning Ability, the Goodenough Draw-a-Man, the Revised Stanford-Binet, the Ontario School Achievement Test, and the Merrill-Palmer Scale of Mental Tests. Different tests were needed because of the limits of the tests, the different ages of the children, and their different abilities. After the psychologist reported to the staff the results of each test, or part of a test, a broad classification was assigned *(Table IV)*.

Fifty-four per cent of the children had average intelligence; i.e., an average from all tests between 90 and 110. Twelve per cent were reported to be bright average. One per cent was thought to be above average, and three per cent were superior, or 130 and above. Nineteen per cent were in the low average group. Two per cent were below average, and eight per cent were mentally retarded. There were several multiple-handicapped children in the mentally retarded group. Four were cerebral palsied, three had severe visual problems, two had serious emotional problems. Two children were not able to cooperate well enough to do anything on the tests; therefore, no classification was given. One of these was later diagnosed as schizophrenic, and the other as autistic.

TABLE V
VINELAND SCORES

Year	*Mean*	*Standard Deviation*	*Number*
1958	109	15.1	16
1957	104	14.9	13
1956	98	15.1	15
1955	106	31.0	19
1954	96	-0-	3
1953	101	28.8	14
1952	105	-0-	6
1951	111	-0-	3
1950	110	-0-	1
1949	101	14.0	10
Total	104	21.2	100

Vineland Social Maturity Quotients were available on 100 children. The range of social quotients was from 53 to 156 with a mean social quotient of 104 and a standard deviation of 21.2 *(Table V)*.

Speech Development

Seventy-six per cent of the children had no speech or language; 13 per cent had a few words; 11 per cent were speaking in short phrases and sentences. The amount of speech was related to the degree of hearing loss, the age of diagnosis, the use of the Tracy Correspondence Course, and the use of a hearing aid. These correlations will be the subject of a subsequent report.

Recommendations

Thirteen per cent of the children wore individual hearing aids when they came to the Institute, and one child had a portable auditory training unit. During the first few years no individual aids were recommended, but nine auditory training units were suggested. Throughout the period of ten years, individual aids were recommended for 21 per cent of the children, and head-sets to be attached to television sets were recommended for another five per cent.

It might be explained that during the first few years the individual aids were quite large and did not have the power output or gain that many aids of today have. Also, the fear of further damage to the hearing as a result of excessive amplification could not be ruled out at that time.

Another problem that existed, and still does, was

the lack of funds for families to purchase and maintain an aid. Hearing aids were not recommended in several instances in the belief that increased economic burdens could not be borne by some families. Funds for the purchase of hearing aids remain one of the major problems. There are no provisions in this state to supply hearing aids to children who need, and could benefit, from their use.

The recommendation to attend a preschool or nursery school for acoustically handicapped children was made whenever possible. Thirty-six per cent eventually enrolled in the Preschool for the Deaf at the University of Kansas Medical Center. However, in many areas nursery schools were not in existence or were not available. When this was so, the nearest qualified speech therapist or teacher of the deaf was recommended to help with part of the program until the child was old enough to be enrolled in a special school at the age of five or six.

Tonsillectomy and adenoidectomy were recommended for 25 children, or 16 per cent of the group. For six of these children it was hoped that such surgery might help a conductive hearing loss. For the other 19 the otologist and pediatrician felt that it might improve the general physical condition. Adenoidectomy was recommended for four children because of repeated middle ear infections. For nine per cent further pediatric and otological examinations were recommended. Eighteen per cent were asked to return to the Hearing Clinic at the Medical Center in six months for further hearing tests.

Fifty-six familes were using the Tracy Correspondence Course when they came to the Institute. It was recommended that 104 enroll upon their return home.

Need for Additional Services

In evaluating such a program, several needs become apparent:

1. The need for earlier referrals to such a program by the family physician. We are not as yet reaching all of the young acoustically handicapped with this Institute.

2. The need for more medical social workers during the week, so that each parent would have more time to discuss his problems with the worker, as well as some one to follow the family back into the community.

3. The need for at least two psychologists in order that more complete testing could be carried out.

4. The need for acoustically treated rooms and more equipment, for more complete audiological testing during the Institute. An additional audiologist is also needed.

5. More complete medical histories on each child, including reports of prenatal care and birth histories from attending physicians.

6. With 72 per cent of the cases diagnosed as "cause unknown," we need more research into causes of congenital deafness.

7. More and better facilities for referral of children and families with emotional problems.

8. There is a need to develop tools to evaluate such a program. It has been felt by the staff that they have not been able to reach every parent and child who attended. Many times it has been demonstrated that some of these parents have done a great deal in understanding their child and developing communication, while other parents who were thought to have the ability to carry out such plans have done nothing.

University of Kansas Medical Center

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1. de Schweinitz, L., Miller, C. A., and Miller, J. B.: Delays in the diagnosis of deafness among preschool children. Pediatrics, accepted for publication.

PREPARATION OF MANUSCRIPTS FOR THE JOURNAL

Exclusive Publication: Articles are accepted for publication on condition that they are contributed solely to this Journal. Publication elsewhere will be subsequently authorized in the discretion of the Editor.

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4. Doe, J. E., What I Know About It, J. Kans. M. S. 54:717-719 (Dec.) 1954.

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Under ordinary circumstances articles are scheduled several months in advance. Notice will be given the contributor when the article has been accepted and again before publication.

Society members throughout the state are encouraged to write up their interesting cases and submit them for publication. The editorial staff welcomes the opportunity of helping you prepare your article for the printer.

Committee
REPORTS

Tuberculosis in Kansas

Part II—Steps in the Differential Diagnosis of Pulmonary Tuberculosis

ROY A. LAWSON, JR., M.D., *Chanute;* RALPH I. CANUTESON, M.D., *Lawrence; and* JOSEPH W. SPEARING, M.D., *Columbus*

The successful treatment of any pulmonary disease depends largely on early accurate diagnosis. This is particularly apparent in the treatment of carcinoma of the lung, but is also of importance in tuberculosis and other pulmonary diseases. The percentage of chemotherapy failures in pulmonary tuberculosis increases with the extent of disease at the time of diagnosis. The duration of hospitalization, economic incapacity, and loss of pulmonary function are also influenced by the extent of disease at the onset of treatment. It is also apparent that early isolation of the patient with tuberculosis decreases the chances of others being infected.

The awareness of the importance of early diagnosis has led to the development of case-finding techniques, such as mobile x-ray surveys, examination of contacts of known cases, tuberculin surveys, and routine preemployment and hospital admission x-ray programs. The patient suspected of having pulmonary tuberculosis may be brought to our attention as the result of symptoms or as the result of one of the case-finding procedures noted above. Although the physician's index of suspicion has been dulled by the decline of tuberculosis, this remains the most important factor in establishing a diagnosis in symptomatic pulmonary tuberculosis. The patient brought to our attention as the result of one of the case-finding surveys may present a more difficult diagnostic

This is the second of a series of four articles by the Committee on Control of Tuberculosis. The third article will appear in the next issue of the JOURNAL.

A major project of the Kansas Medical Society Committee on Control of Tuberculosis during this past year has been the preparation of a series of four articles intended to orient the practicing physician with the current status of the diagnosis, treatment, and follow-up of patients with tuberculosis. This was felt advisable in view of the changes in the management of this disease in the last few years prompted in large measure by the new drugs available for treatment which have put more of the burden of treatment on the home physician. The members of the Committee have devoted a great deal of time to these articles and Doctor Martin FitzPatrick has served admirably as the editor of these four articles. They are appearing in serial form in the *Journal* following which they will be bound and made available in booklet form to each member of the Society.

problem, but the steps in differential diagnosis are essentially the same. Frequently the careful use of all diagnostic aids at our disposal, and the correlation of history, physical examination, laboratory findings and, in some instances, surgical procedures, are necessary to establish a definite diagnosis.

History

Historical data are often of importance in the diagnosis of asymptomatic as well as symptomatic tuberculosis. Consideration of the patient's age, sex, occupation, habits, exposure to tuberculosis, and past history, can be of help in determining the significance of symptoms, physical findings, and laboratory data. For example in evaluating an asymptomatic x-ray abnormality, consideration of the patient's age, sex, and smoking habits, would govern our suspicions of carcinoma of the lung. History of exposure to dust from the excreta of fowls could suggest histoplasmosis that might be confirmed by skin test, serological studies, and cultures. The past history of pleurisy with effusion or contact with an active case of tuberculosis might be sufficient evidence for a tentative diagnosis of tuberculosis even in the absence of bacteriological confirmation.

Although the symptoms of tuberculosis are non-specific and not necessarily related to the extent of the disease, they are helpful in correlation with other findings and may suggest the need for further diagnostic studies. Persistent toxic symptoms, such as weakness, weight loss, fever, and night sweats, are common to many chronic infections and to neoplastic and metabolic diseases, but should always suggest the possibility of tuberculosis and the need for further evaluation. Localizing symptoms, such as cough, production of sputum, presence of hemoptysis, and chest pain, are also non-specific but, again, should suggest the need for further studies. Since patients with tuberculosis frequently date the onset of the illness to an acute respiratory infection, persistent cough or toxic symptoms following an acute respiratory infection are always worthy of further investigation.

Physical Examination

As with symptoms, physical findings in pulmonary tuberculosis are usually late in appearance and non-specific in nature. Evidence of a chronic disease, such as weight loss and pallor, should lead one to consider tuberculosis in the differential diagnosis. However, physical findings might be quite useful if correlated with history and laboratory studies. The findings of dental sepsis along with a history of an episode of impaired consciousness might suggest that a pulmonary lesion is aspiration pneumonia or a chronic lung abscess. The finding of clubbing of the fingers in the absence of extensive pulmonary disease might suggest carcinoma of the lung. Evidence of bronchial obstruction such as localized expiratory wheeze, or persistent rales with or without x-ray abnormality, suggest the need for bronchoscopy and other diagnostic studies to determine the cause of the bronchial obstruction. The finding of palpable supraclavicular nodes on physical examination would suggest that, if other diagnostic studies fail, biopsy of these nodes might provide a diagnosis. It should be remembered that well over 50 per cent of patients with active pulmonary tuberculosis will have no physical findings that would lead one to suspect tuberculosis.

Tuberculin Test

Tuberculosis may be virtually ruled out as a cause of an x-ray abnormality or as a cause of the patient's symptoms, by a negative tuberculin skin test. Although there are a variety of ways of administering tuberculin, the Mantoux test is generally agreed to be the method of choice, and the patch test is generally agreed to be too inaccurate for clinical use. A properly administered intermediate strength PPD tuberculin test will be positive in about 95 per cent of patients with active tuberculosis and, with the rare exception of patients with overwhelming disease, the second strength tuberculin test will be positive.

The significance of a positive tuberculin skin test varies with the age of the patient and with other findings. A positive tuberculin test in a child under three should probably be considered as evidence of primary tuberculosis in need of treatment. When a positive test is found in one who has previously had a negative test, tuberculous infection has occurred in the interval between tests. Although tuberculin reaction rates are not known for adult populations in Kansas, it is generally agreed that even in the older age groups, a positive test considered in relation to other findings may be helpful in making a diagnosis of tuberculosis.

Other delayed hypersensitivity tests such as the histoplasmin and coccidioidin skin tests are of considerable help in differentiating histoplasmosis and coccidioidomycosis from tuberculosis.

X-Ray Examination

Although a great deal of information can be obtained by x-ray examination of the chest, particularly if previous films are available for comparison, it must be remembered that frequently carcinoma of the lung, histoplasmosis, chronic lung abscess, and other pulmonary disease, cannot be differentiated from pulmonary tuberculosis by chest x-ray examination. Considered along with other evidence, the x-ray interpretation is of considerable assistance in arriving at the proper diagnosis, but over-reliance upon x-ray interpretation, to the exclusion of other equally important diagnostic tests, results in many missed diagnoses.

A number of studies have been done showing the

distribution of tuberculosis lesions vs. carcinoma of the lung, lung abscess, and pulmonary infarction. The localization of disease in the upper lobes (or the superior segments of the lower lobes), on x-ray, suggest a tuberculous etiology. Although reinfection tuberculosis does not occur commonly in the lung bases, it does occur with sufficient frequency that tuberculosis must also be considered in lower lung field lesions. The presence of cavitation also suggests tuberculosis; however, histoplasmosis and carcinoma of the lung, coccidioidomycosis, and lung abscess, may produce cavitation that cannot be differentiated by x-ray from tuberculosis. Bronchiectasis and emphysematous bullae frequently cannot be differentiated from tuberculous cavity on routine PA film of the chest.

Special x-ray techniques, such as lordotic films and body sections films, are helpful in further defining the pulmonary lesion, in demonstrating the presence or absence of cavity, and in showing calcification in the lesion. The presence or absence of calcification is particularly important in reference to the solitary pulmonary lesion (coin lesion). Consideration of the discreteness of the pulmonary lesion, the presence of calcification and lamination in relation to other findings, will sometimes allow the differentiation of granuloma from carcinoma of the lung.

Serial x-ray examinations can be of considerable help in assessing the activity of pulmonary tuberculosis. Both x-ray progression and regression indicate activity. However, again, we should not expect more of the radiologist than he can give us. The diagnosis of inactive pulmonary tuberculosis should not be accepted on a single x-ray interpretation, and the possibility of active disease has never been ruled out until bacteriologic studies of sputum are done.

In many instances, even after thorough diagnostic evaluation, the etiology of the pulmonary lesion remains obscure. Following such an abnormality by x-ray examination at regular intervals is often quite helpful in reassuring us that the lesion is an inactive, inflammatory disease. The dangers of relying on serial x-rays have been brought out by many observers. An unchanging x-ray does not rule out active tuberculosis, and carcinoma of the lung has been found in patients with a stable x-ray lesion followed for several years. However, a stable x-ray abnormality, considered with other negative findings, is usually good evidence of benign, inactive disease even if an etiological diagnosis has never been established.

Bacteriological Studies

Although it is sometimes necessary to make a diagnosis of tuberculosis and initiate treatment without bacteriological confirmation, the diagnosis always remains in some doubt unless tubercle bacilli can be recovered from the patient. The interpretation of the results of bacteriological studies are dependent upon a number of factors. Sputum specimens should be collected over twenty-four hours, or a long enough period of time to assure a good sampling of bronchial secretions. Specimens should be inspected to be sure that they contain bronchial secretions rather than just saliva. Although a positive smear for acid-fast bacilli can usually be accepted as evidence of pulmonary tuberculosis, saprophytic acid-fast bacilli, atypical or chromogenic acid-fast bacilli, and even the mycelia of certain fungi, can produce false positive smears. Repeated false positive smears should suggest an error in laboratory technique such as washing acid-fast bacilli from one slide to another, re-using slides, or contaminating water or immersion oil with acid-fast bacilli. It is estimated that one million organisms per cc. are necessary to obtain a positive smear. When one also considers that 80 to 90 per cent of the organisms present in sputum or gastric contents are destroyed by the usual methods of concentration and decontamination, it is apparent that a negative smear should not be considered as evidence against a diagnosis of tuberculosis except, perhaps, in the presence of far-advanced disease with large cavities.

A positive culture for acid-fast bacilli resembling Mycobacterium tuberculosis should be considered as diagnostic of tuberculosis. Currently used culture methods are probably just as sensitive as guinea pig inoculation in recovering tubercle bacilli. Animal inoculation is useful in evaluating atypical acid-fast bacilli and in determining virulence.

The experience of the technician and the laboratory facility doing the bacteriological studies are important in interpreting the results.

The patient who cannot produce sputum should have his gastric contents cultured. Fasting gastric contents should be obtained in the morning before the stomach has been emptied of its night-time accumulation of bronchial secretions. The chances of recovering tubercle bacilli from gastric contents diminish with the length of time the patient has been up prior to gastric aspiration. This should be considered in evaluating the report of a negative gastric culture. It should also be noted that the number of organisms decreases rapidly in gastric contents prior to neutralization with sodium hydroxide or tri-sodium phosphate, so that if there is a several-hour delay between the collection of the specimen and neutralization, negative cultural results are of little value. In establishing a definite diagnosis, the number of cultures necessary depends upon the extent of the disease. In minimal non-cavitary disease, it is well to obtain six to ten specimens for culture before considering the initiation of treatment.

Other Diagnostic Studies

Although an increase in the white count with shift to the left in the differential may occur in tubercu-

losis, particularly in acute, extensive disease, these changes can usually be considered as evidence against a diagnosis of tuberculosis. The sedimentation rate is of little diagnostic value, but is occasionally of some help in determining the activity of the disease. However, it is not uncommon for a patient to have active disease with a normal sedimentation rate. Although there is considerable work being done in an attempt to devise a serological test for tuberculosis, none of the currently available tests are sufficiently reliable or easily done to be of practical value to the practicing physician in diagnosing pulmonary tuberculosis.

Bronchoscopy and bronchograms are of use in establishing nontuberculous etiology of pulmonary disease. Occasionally cultures of bronchial aspirate obtained at bronchoscopy will be positive for tubercle bacilli when all other attempts to recover organisms are negative. Even in the face of a definite diagnosis of tuberculosis, bronchoscopy should be done if there is any clinical or x-ray evidence of bronchial obstruction, in order to rule out coexisting carcinoma of the lung. Bronchograms are particularly helpful in differentiating bronchiectasis from tuberculous cavity.

If a definite diagnosis is not forthcoming from the above diagnostic studies or if carcinoma is seriously considered, exploratory thoracotomy may be indicated. In diffuse pulmonary disease, lung biopsy can be done either under local or general anesthetic with little morbidity and may establish a definite diagnosis. Vim-Silverman needle biopsy of the pleura may be helpful in establishing the cause of pleurisy with effusion. Biopsy of supraclavicular lymph nodes is frequently of help in establishing the cause of a pulmonary abnormality.

Conclusion

A diagnosis of tuberculosis results in a great deal of inconvenience to the patient. It has emotional and social implications, as well as requiring prolonged expensive treatment. A missed case of tuberculosis has even greater consequences in the form of delayed treatment, increased duration of hospitalization, increased mortality, and increased disability after the disease is under control. The importance of early positive diagnosis, and the need to use all of the means at our disposal to accomplish this, is apparent. Some of the aids in establishing the diagnosis have been reviewed, but the correlation of historical and clinical and laboratory information is the most difficult, and yet the most important, part of establishing a diagnosis.

The systematic collection of pertinent historical data, physical findings, results of skin tests, x-ray interpretation, bacteriological studies and the results of other diagnostic studies, and the correlation of this information, will result in a definite diagnosis in most instances.

THE DEPARTMENT OF RESEARCH AND EDUCATION

Menorah Medical Center

Kansas City, Missouri

Thursday, October 1, 1959 — Auditorium, Menorah Medical Center

From Cortisone to Dexamethasone: A Decade of Experience with Anti-Inflammatory Steroid Hormones

9:00- 9:40 a.m. The Effect of Steroid Hormone on Tissue Reactivity
Thomas F. Dougherty, Ph.D., University of Utah, Salt Lake City

9:50-10:30 a.m. The Relation of Steroid Structure to Metabolic Activity
Grant W. Liddle, M.D., and Herbert A. Burke, Jr., M.D., Vanderbilt University, Nashville

11:00-11:40 a.m. The Use of Steroid Hormones in Dermatology
Leon Goldman, M.D., University of Cincinnati

11:50-12:30 p.m. The Use of Steroid Hormones in Allergic States
Samuel Feinberg, M.D., Northwestern University, Chicago

2:00- 2:40 p.m. The Use of Steroid Hormones in the Rheumatic Diseases
Albert Grokoest, M.D., Columbia University College of Physicians and Surgeons, New York

2:50- 3:30 p.m. The Use of Steroid Hormones in Hematology
William Harrington, M.D., Washington University, St. Louis

4:00- 4:40 p.m. The Use of Steroid Hormones in Pulmonary Disease
Hylan Bickerman, M.D., Columbia University College of Physicians and Surgeons, New York

4:50- 5:30 p.m. The Therapeutic Effects and Incidental Side Effects of Steroid Hormones on the Gastrointestinal Tract
John V. Carbone, M.D., University of California, San Francisco

Maternal Mortality

The patient was a 23-year-old gravida II, para I who had died in a small hospital in a small town. Death certificate attributed death to "coronary occlusion due to bacterial endocarditis, complicated by seven month pregnancy."

First Visit to Physician

The initial visit to the physician was in the fifth month of pregnancy at which time she complained of cramping. Because of this, no examination was performed, but bed rest was advised. A urinalysis was normal. Three weeks later, she returned because of symptoms of respiratory infection. Again she was not examined, but erythromycin and aspirin compound were prescribed. She returned three days later, obviously quite ill, and bronchial rales were noted on examination, whereupon she was hospitalized.

Admitted to Hospital

On admission, temperature was 99, but this rapidly progressed to 102.4 with a pulse rate of 120 and respiratory rate of 46. Benadryl®, Crystodigin® and Achromycin® were prescribed, and a few hours later the patient became cyanotic and oxygen was started. Penicillin and streptomycin were given, and morphine was prescribed for restlessness. The physician was in constant attendance during the next few hours, but the patient's condition deteriorated progressively and she expired. No blood cultures were taken at any time.

The diagnosis of subacute bacterial endocarditis was based on a subsequent report from someone in the family that she had had it for about a year. Circumstances concerning the first pregnancy and delivery were not known. The certificate diagnosis was based on the physician's impression that this was a "cardiac type of death." The information presented represents all that was contained in the office and hospital records augmented by the physician's verbal additions.

Committee Opinion

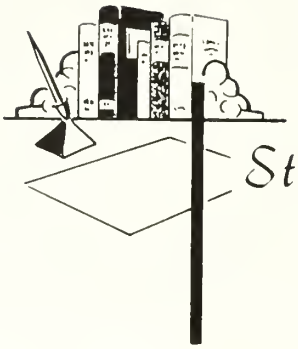
The committee noted particularly the inadequacy of the records, considering that if they accurately reflected the care given, the latter was obviously inadequate and if the care was, in fact, more complete, better recording of it would protect the physician and enhance the study.

The information presented did not support a diagnosis of subacute bacterial endocarditis but was much more indicative of pneumonia. The committee noted the fundamental necessity of a complete history and physical examination on the first visit and close attention to all complaints during pregnancy and the importance of proper records.

Classification

Indirect obstetric death, preventable.

One of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas.



Student THESIS

Leukemia

The Virus Theory of Its Etiology

DANIEL C. MARTIN, M.D., ***Kansas City***

The theory that leukemias are caused by a virus or viruses is not new; a few well-known writers and research workers have advocated this explanation for the cause of all neoplasms.[6] Other writers who believe that a submicroscopic entity does play a role in the cause of leukemia tend to avoid the use of the word "virus" with infinite care, preferring instead the use of: "leukemic agent," "accelerating agent," and "cell-free filtrate." Since the purpose of this paper is to determine, if possible, the existence of a leukemic agent which might be a virus, it may be desirable to list accepted criteria for designating a disease as being caused by a virus:

1. The agent consistently reproduces the disease in susceptible hosts.
2. The agent shows evidence of replication in the host.
3. The agent passes through filters which retain bacteria.

If an agent can be demonstrated which meets these criteria and also demonstrates some of the less universal characteristics of a virus, then no reasonable objection should be raised to assuming that the agent is a virus, and that a virus is at least a part of the etiology of leukemia.

This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Martin has completed his internship at the Wesley Hospital, Wichita, Kansas, and is now at the Kansas University Medical Center.

Five Experimental Areas

In surveying the experimental evidence presently available, it seemed logical to consider the following five areas of experimental approach:

1. Inbreeding of animals naturally susceptible to "spontaneous" leukemia.
2. Histological examination of neoplastic and normal tissues.
3. Antigen-antibody studies of neoplastic and normal tissues.
4. Transmission of leukemia by cell-suspensions of leukemic tissues.
5. Transmission of leukemia by cell-free filtrates.

The main scope of this paper will be to cover the more recent experiments in mammalian leukemias and related lymphomas. The older investigations into avian leukosis and other tumors are of real interest and importance, but they will only be reviewed briefly.

The first neoplasm universally conceded to be caused by a virus was the avian leukosis discovered by Ellerman and Bang in 1908. This was followed in 1912 by Rous' discovery of a virus which caused avian sarcoma. Since that time most of the malignancies seen in chickens have been investigated and found to be induced by a virus or virus-like agents. Tumors are very common in chickens, occurring naturally in 10 to 20 per cent of the birds. Due to this high incidence they were used quite extensively in pre-war investigations on cancer. Since all or

nearly all the avian tumors could be shown to have a virus etiology, many of the experimenters who worked mainly with the avian tumors became outspoken advocators of the theory that all tumors in all species were induced by viruses. Except for the Shope rabbit papilloma (1933) and the Bittner mammary carcinoma (1936), the workers who used mammalian animals in their experiments were notably unsuccessful in finding any evidence of a viral influence on the incidence of any tumor. Those who did believe in the virus theory were a very vocal minority, but were largely ignored. Extensive research has continued in the avian tumor field with considerable success in isolating virus-like agents. It was after 1950, however, before any notable advances were made in the investigation of viral agents causing or influencing mammalian leukemias.

Use of Susceptible Animals

Leukemia in mammals is essentially a rare disease, but by selective inbreeding of leukemic mice, a strain can be obtained in which there is a very high incidence of leukemia. Furth and his co-workers in 1933 developed a strain designated as AK which has an incidence of over 80 per cent. MacDowell in 1935 also developed a strain designated as C58 which also showed a high incidence of spontaneous leukemia. If the occurrence of leukemia is to be explained on the basis of the presence of a viral agent plus innate susceptibility, a route of infectivity must be established. Since Bittner's work with the milk virus is so famous and so easily duplicated, many unsuccessful attemps were made to demonstrate the same route of infectivity for the strains of mice with a high incidence of leukemias. An experiment by Gross is an excellent example of the attempts to apply Bittner's work to leukemia transmission.[10] In 1952 he removed several litters from AK females by Cesarean section and nursed them with foster mothers from a strain which rarely developed leukemia. The incidence of leukemia in the foster-nursed AK mice was the same as in AK mice nursed by AK mothers. When the AK mouse, either male or female, is cross-bred with a mouse of a leukemia resistant strain, the progeny show an increased incidence of leukemia to the F_1 generation. The leukemic incidence in the progeny varied considerably and seemed to depend upon the resistance of the strain with which the AK mouse was cross-bred. In another experiment which will be discussed later, Gross[10] demonstrated the presence of a leukemia inducing agent in very young AK embryos. Furth, Gorer, and Fagraeus all favor the theory of Gross that an inherited agent, possibly virus-like, is a factor in the continued incidence of leukemia in the AK strain. Further comment will be forthcoming after other experiments have been discussed.

Histological Studies

In this section a few studies will be presented which seem to indicate the intracellular presence of an agent which appears very similar to virus inclusion bodies. Takaki and his associates made histologic studies of several lymphosarcomas and carcinomas using ultra-thin sectioning and the electron microscope. They stated in summary, "The only thing we could say at the present state of our studies is that there are structures in human cancer cells indistinguishable from the changes seen in virus infected cells electron microscopically." Besis, who recently made extensive electron microscopic studies of normal and leukemic leukocytes, found in the nucleus and cytoplasm of human and AK mouse leukemic leukocytes, many granules of unknown origin. These were not seen in normal cells. De Roberts, Canzine, Gasic, and Epstein after destruction of the leukemic AK mouse leukocytes, have described the presence of numerous particles 100 to 130° in diameter which they attribute to the presence of virus.

Another histologic finding of some interest is the pathologic difference in the behavior of leukemic transmissions by cell suspensions and cell-free filtrates. When the transmission was accomplished by implantation of leukemic tissue cell suspensions, a leukemic tumor developed at the site of the implantation within two or three weeks.[10, 8] This local tumor was followed in one or two weeks by a generalized leukemia. When a cell-free filtrate of leukemic tissue was used to induce the leukemia, a pathologic picture was created which was typical of spontaneous leukemia, and incidentally, which might logically be expected in a virus infection.[20] The leukemic process was first observed as foci in some of the bone marrow sinusoids on the third day after virus inoculation. By the seventh day the bone marrow was diffusely involved with some infiltration of the liver and spleen.

Antigen-Antibody Studies

If there is a virus inside the leukemic cell, then the foreign protein should be detectable by immunologic means. It must be admitted that the literature contains more instances of failure on this approach than successes, but the successes warrant inclusion in this paper since they are well substantiated. Werder and associates in 1952 prepared an antileukemic serum by injecting cell suspensions of splenic tissue into adult rabbits. The leukemic spleens were from two different strains of spontaneously occurring leukemia. Antinormal tissue serum was also prepared by injecting rabbits with normal spleens from the same strains of mice. Normal rabbit serum and saline were used as controls. The test antiserum, control serum, or saline was mixed with a leukemic cellular suspen-

sion and allowed to stand at 22° or 4° C. for one hour each. After this the mixtures were injected intraperitoneally into mice. A portion of each serum was heat treated as indicated in the table below.

Another series was run exactly as the above, except that the other strain of leukemic cells was used. The results were similar. The experiment indicates the presence of a specific antibody in the antileukemic serum which not only gave greater protection, but also proved to be more thermostabile than the protective mechanisms present in the antinormal spleen serum and the normal serum. Thompson in 1955 prepared rabbit antiserum against normal mouse lymphocytes and the lymphocytes of a lymphocytic leukemia of the same strain of mice. When the antileukemic serum was adsorbed with the normal lymphocytes, it would still fix complement in the presence of leukemic cells. It appears that an antibody was produced which was specific for this leukemia. Schoolman and Schwartz[25] made some interesting observations on antigen-antibody reactions, using adult guinea pig serum. They found that normal adult guinea pig serum contains an agglutinin for the leukocytes, leukemic tissues, brain, and spinal cord tissue of AKR mice who have lymphomas or leukemias. Agglutinins were also demonstrated for other neoplasms, including: plasma cell tumor and mammary carcinoma of the C3H strain, and the leukocytes of human leukemia.

These agglutinins were not present in the serum of newborn or young guinea pigs, and were not demonstrated in the serum of any other animals of a large group tested. The agglutinin reactions were uniformly negative when tested against the same tissues of non-leukemic animals. The reasons for these results are not clearly understood; however, the results do indicate the presence of a fairly specific antigen-antibody reaction which points to the presence of an unusual agent in the leukemic cells. Calaresu, Spurrier, and Schwartz[4] prepared antisera with red blood cells from normal humans, normal AKR mice, human chronic lymphatic leukemia, and AKR mice with spontaneous leukemia. By adsorption there were shown specific agglutinins for the erythrocytes from leukemic animals and no agglutinins for normal erythrocytes. A cross agglutination was demonstrated among the various human leukemias as well as among the AKR leukemias. The presence of a specific antigen within or on the red blood cells of leukemic animals is neither surprising nor contradictory; a virus, if present, would hardly be expected to be confined solely to the tissue it affects the most. Further comment on this point will be made later.

This experiment lends more support to the theory that a foreign agent is present in the leukemic animals. Amos and Day used antibodies prepared by hyperimmunization of a resistant mouse strain against strains of leukemias and lymphomas to passively immunize mice of both resistant and susceptible strains. The results of this experiment were clear, but the experimental controls were such that I would hesitate to base any assumptions on it. Amos and Day did succeed in separating some of the active antigen systems and concluded that two of them were responsible for the leukemic antibodies. Korngold and Pressman tried a different approach in searching for evidence of specific antigens in lymphosarcomas. Antiserum was prepared in rabbits by injecting them with Murphy lymphosarcoma. For control purposes normal serum and antinormal rat tissue serum were also prepared. All three sera were tagged with radioiodine, purified, and then injected into rats previously implanted with Murphy's lymphosarcoma. One day later the localization of the antibodies was determined. Korngold summarized his findings as follows: "The data shows that the antilymphosarcoma sera contains antibodies capable of localizing in the lymphosarcoma. No such antibodies were found in the other antitissue sera tested. The fact that the tumor-localizing antibodies were present only in the antilymphosarcoma sera indicates that the lymphosarcoma contains an antigen which is unique for lymphosarcoma.

"However, there are other possible explanations for

TABLE I

Leukemic Cell Suspension Mixed With:	*Treatment of Serum Sample* Unheated		Heated at 56° C.		Heated at 60° C.	
	Mouse Surviv.	Per Cent Surviv.	Mouse Surviv.	Per Cent Surviv.	Mouse Surviv.	Per Cent Surviv.
Antileukemic Serum	14/15	93	11/15	73	10/15	67
Antinormal Serum	8/15	53	5/15	33	2/15	13
Normal Serum	2/15	13	0/15	0	0/15	0
Saline	0/20	0				

this phenomenon, for example: (a) the lymphosarcoma contains an antigen which is characteristic of the strain in which the tumor originated, and absent in the host rat, (b) the tumor antigen—responsible for localization—is present in other tissues also, but the particular rabbits immunized with these tissues failed to respond with the production of antibodies against this antigen. It is doubtful that we are dealing with a strain difference, because the antikidney serum was prepared against the original host rat kidneys and failed to localize in the tumor. The fact that all five rabbits immunized with normal tissue failed to produce tumor localizing antibodies makes the second confounding explanation rather doubtful."

The evidence presented in this section is still considered controversial by some, but it has been confirmed by enough workers to be accepted as sound reliable research.[17-19, 21] The evidence definitely indicates the presence of a foreign agent in the tissues of leukemic animals which is not present in normal animals.

Cell Suspension Transmission of Leukemia

The main purpose of this section is to present certain characteristics of whole cell transmissions of leukemia which will later be contrasted with cell-free transmission. As it was pointed out in a previous section, the injection of leukemic cells will cause the growth of a tumor at the site of injection followed in one or two weeks by a generalized leukemia. It was shown further[10] that though transfer among AKR adult mice was possible, the injection of AKR leukemic cells into C3H mice was rarely productive of leukemia. If, however, the AKR cells were injected into C3H mice one day old or less, the C3H mice did show leukemic changes at an early age. It must be supposed, however, that the young C3H mice served only as a growth medium, for the resulting leukemia in C3H mice was transplantable back to adult AKR mice, but not to adult C3H mice.

Cell-Free Transmission of Leukemia

The first successful attempt to transmit leukemia by cell-free filtrates was reported by Engelbreth-Holem in 1938. He reported transmitting AKR lymphoma by a cell-free filtrate. Later attempts by MacDowell and Engelbreth-Holem to reproduce these results failed and they were forced to conclude that in the first experiment the inoculum had not been cell-free. In 1951 Gross[10] began to report encouraging results using cell-free filtrates. His methods, which have changed very little since then, were as follows: a sterile 20 per cent concentration of leukemic cells was prepared by grinding spleen, liver, and lymphatic tumors of leukemic AK mice. This suspension was then centrifuged at 3,000 rpm at 0° C. for 15 minutes and the supernatant was centrifuged at 9,500 rpm at 0° C. for 15 minutes. The resulting supernatant from the second centrifugation was in some cases passed through Seitz or Berkefeld-N filters to insure that it was cell-free. The supernatant or filtrate was then injected intraperitoneally or subcutaneously into mice less than 24 hours old. Litter mates were used as controls and were injected with the supernatant which had been heated to 65° C. for 30 minutes.

The injected mice were of the C3H strain which is fairly closely related to the AK strain, but has a low incidence of spontaneous leukemia. In the initial experiment[10] Gross noted that 19 of 41 mice developed leukemia at an average age of 5.2 months. Diagnosis was made by clinically observing the enlargement of lymphoid tissue and by histological examination. Of the 26 controls, none showed evidence of leukemia. In subsequent experiments[9, 11, 11] involving over 300 test animals and over 200 controls, the percentage of test mice developing leukemia varied from 30 to 100 per cent. Several other important observations were made also. The C3H leukemias induced by the cell-free filtrates were transplantable to adult C3H mice, but only rarely transplantable to the adult AK strain. It was also noticed that a large number of salivary gland carcinomas developed in the test animals (eight to 20 per cent). The salivary gland carcinomas and the leukemias never developed in the same animal. Serial passages of the agent through eight series of newborn C3H mice noticeably increased its virulence and also decreased the age of onset. The agent never became virulent enough to be infective for adult mice. In an effort to determine the route of transmission of the agent in AK mice, Gross used AK embryos to prepare a cell-free filtrate in approximately the same manner as described earlier. Of 92 twelve-hour-old C3H mice inoculated with this filtrate, 11 developed leukemia and 10 developed salivary gland carcinoma. The leukemic agent can be stored either as a cell suspension or as a cell-free supernatant at −70° C. for up to six months with no noticeable deterioration in its leukemogenic effect. The pathogenic potency of the filtrate is retained even at dilution up to 1:100,000. Inoculations of 0.1 ml of the 1:100,000 dilution of the centrifuged leukemic AK agent were enough to cause some salivary gland carcinomas in C3H mice.

Gross' Experiment

Gross had some fairly good results when he injected the filtrate into C57 black and C57 brown mice. His attempts to induce the leukemia in other strains were relatively unsuccessful. Ten different workers have confirmed or expanded the work of

Gross so that its validity is well established. Woolley, *et al.*, in 1956 published a report on work he had done using essentially the same techniques as Gross. In a series of 245 test and 272 control animals, he reported an incidence of 18.5 per cent leukemia cases and eight per cent salivary gland carcinomas among the test animals and only 1.2 per cent incidence of leukemia among the controls. Most of the other investigators reported results comparable to these of Gross. Friend has isolated a filterable agent from a Swiss mouse which can induce a granulocytic leukemia in adult mice of the Swiss and DBA/2 strains. The agent has been transmitted through 26 serial passages with the cell-free filtrates as well as cell suspensions. The agent has the following characteristics: it passes Selas 03, Berkefeld-N and gradocol membrane filters (the filters have an average pore size of 220 mu), it remains stable after long periods at –70° C., it is not destroyed by lyophilization, it is inactivated by heat (30 minutes at 56° C.), ether, and formalin, and finally, it remains infective when exposed to 50,000 r of radiation. The leukemia was also transmissible to the C3H strain, but only by newborn inoculation. In the C3H strain the leukemia was also granulocytic and could be transmitted from adult to adult after the initial transfer. She found that many different tissues of the infected mouse contained the agent and could be used to prepare filtrates for transmission of leukemia.

Bergol'ts' Experiment

A Russian scientist, Bergol'ts, published another experiment which further expanded the work of Gross. For this experiment he prepared a cell-free filtrate of a cell suspension extracted from a wide sample of human leukemic spleens, livers, and lymph nodes. Bergol'ts fractionated part of the cell-free filtrate to obtain the mitochondria, microsomes, and cell-protein concentrates. The whole filtrate and the three fractions were each injected into 25 suckling mice. The results of this experiment were similar to those of Gross; the cell-free filtrate induced an incidence of 36 per cent, the mitrochondria fraction induced 29 per cent leukemia, the microsome fraction 20 per cent, and the cell-protein concentrate 15.6 per cent. For controls he injected 100 suckling mice with saline and 117 with a cell-free filtrate of a human sarcoma. The saline injected mice had a leukemia incidence of 0 per cent and the sarcoma filtrate injected mice had an incidence of 4.3 per cent. Bergol'ts established a very high and rigid criterion for diagnosing leukemia in his test animals and this should lend added respect to his findings.

As discussed in an earlier section of this paper, Schwartz noted that adult guinea pig serum would agglutinate the brain tissue of a leukemic animal as well as the blood, spleen, liver and node tissue cell suspensions. To investigate this relationship, Schwartz[22] prepared cell-free filtrates (using the techniques of Gross) of leukemic AK mouse brain, spleen, and nodes. A filtrate was also prepared from the brains of several human leukemic cases. Controls consisted of filtrates of normal mouse brain and lymph nodes, and the heat treated (65° C. for 45 minutes) filtrates of leukemic mice. All filtrates were passed through a Seitz filter, tested for integrity by the inclusion of E. coli. The filtrates were injected intraperitoneally and intracranially into six-to-14-week-old AKR mice. Although the AK strain has a high incidence of spontaneous leukemia, the appearance of this leukemia before 22 weeks of age is rare. The experiment therefore was always terminated when the mice reached 22 weeks of age. Among the controls there were no cases of leukemia out of 229 injected. Of 178 mice injected with the human leukemic brain filtrate, 11 cases of leukemia were induced. Of 175 mice injected with the AK leukemic brain filtrate, a total of 87 leukemias was induced. The filtrate prepared from AK leukemic spleens and nodes did not induce any cases of leukemia. Schwartz realized that the main objection to this experiment would be that he had used a strain of mice with a high natural incidence of leukemia. His next published experiments in this field[23, 26] were designed to use a lymphoblastoma arising in a Swiss mouse for preparation of the cell-free filtrate. This filtrate was injected into Swiss mice. Of the controls (injected with a heat treated filtrate) only one out of 59 developed leukemia. The filtrate prepared directly from the tumor induced no cases of leukemia. The filtrate prepared from the brains of the mice with the lymphoblastomas induced 70 cases of leukemia out of 105 injected. A cell-free filtrate of brain tissue from humans with leukemia caused 63 cases of leukemia out of 306 Swiss mice injected. In another series[24] using brain filtrates from 11 human cases of acute leukemia, there were 163 cases of leukemia out of 451 injected AK mice before they reached 22 weeks of age. No control mice developed leukemia out of 248 mice injected with non-leukemic brain filtrate and a heat treated filtrate. A later experiment[26] confirmed the findings of the Swiss mice experiment.

Discussion

Now that the experimental evidence has been presented, the time for correlation, consideration, and conclusion has arrived. *First*, evidence has been presented which strongly indicates that there is present in the body of a leukemic animal an agent which is either not present in the normal animal or present in such small quantities as to be undetectable. The evidence included histologic, immunologic, and trans-

mission studies. *Second*, the agent was shown to consistently reproduce the disease in susceptible host animals. The agent when properly isolated and inoculated, caused a highly significant increase in the incidence of leukemia. Even the cell-free filtrate from human leukemic victims caused a typical leukemia in mice. The filtrate would induce a type of leukemia in a foreign strain of mice that was similar to the leukemia in the donor strain, but in most cases it could not be transmitted back to the donor strain by cell suspension. This was not a general characteristic of the agent-induced leukemias, but was noted in a large portion of them. The filtrate-induced leukemias were shown to be histologically a duplication of spontaneous leukemia. *Third*, the agent does show evidence of replication in the host. Very dilute inoculums of the filtrate can induce the disease in mice, and the organs of the new host can be used to prepare filtrates which in high dilution will reproduce the disease. *Finally*, the agent has been shown to pass through many filters and still induce the disease. Since the leukemic agent does fulfill all the accepted standards, there is no real purpose to be served in denying it the title of "virus." Discovery of the leukemic viruses and the acceptance of them does not make the disease itself any less frustrating or, presently, any more understandable. Obviously the virus itself is not the whole answer to the question, "What is the etiology of leukemia?" However, I believe that a leukemic virus is part of the answer to the etiology of some or all of mammalian leukemias.

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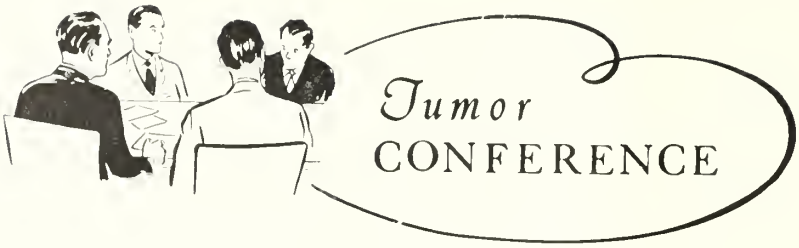
Journal's "New Face"

The JOURNAL presented a "new face" to its readers starting with the August issue when newly designed section heads were used for the first time.

Comments on the new heads will be welcomed.

P.S. Watch for other changes in the JOURNAL's format.



Carcinoma of the Rectum

Edited by DONALD J. SVOBODA, M.D.

Dr. Friesen (Moderator): This malignant tumor of the gastrointestinal tract occurred in a patient younger than most of those in whom one customarily finds such a lesion. Certain pathologic features and the surgical management of the case warrant its consideration.

Mr. Williams (Medical Student): The patient is a 29-year-old white man first admitted to the Kansas University Medical Center on March 2, 1959. He was well until one month prior to admission when he noted constipation with reduction in caliber of the stool and straining upon defecation. Three weeks prior to admission he noticed dark red and bright red blood in his stool. He immediately went to his physician who put him on a soft diet and laxative, neither of which gave him relief. His physician found a palpable nodule on rectal examination, and a barium enema and air contrast study revealed a polyp in the colon. The patient was admitted to the University of Kansas Medical Center for further treatment.

The patient's father died at the age of sixty-two with carcinoma of the gall bladder.

Physical Examination

Physical examination on admission was normal except for a firm annular lesion palpable in the rectum at seven cm. Sigmoidoscopic examination confirmed the presence of the lesion, and a biopsy was reported as adenocarcinoma of the rectum.

Dr. Friesen: Was there anything unusual about the constipation which prompted the patient to see a physician after symptoms of only one week's duration?

Mr. Williams: There was a persistent feeling of something in the rectum which he could not evacuate, and, moreover, the presence of blood in the stools was particularly worrisome.

Dr. Friesen: It is rather remarkable that the patient, though not in the so-called "cancer age," went to a physician after one week of symptoms while many patients have similar symptoms for months before consulting a physician.

What were the roentgenologic findings?

Dr. Tice: There is an area of non-expansion in the region of the rectosigmoid, but there is no napkin-ring deformity. We were unable fluoroscopically to demonstrate evidence of a polyp. The post-evacuation film is not remarkable.

Dr. Friesen: What was done surgically?

Mr. Williams: Two days after admission an A-P resection with removal of descending colon, rectum, and periaortic nodes was performed.

Dr. Friesen: Why were periaortic nodes removed? This lesion customarily spreads along mesenteric and portal lymphatics. Is there another avenue of lymphatic spread?

Mr. Williams: A lesion in this area is also known to spread to periaortic nodes via lymphatics which accompany the inferior mesenteric vessels to join the periaortic chain.

Dr. Friesen: The lymphatic drainage of the rectum may be along the route mentioned or to the iliac vessels and the inferior vena cava and aorta via the lymphatic vessels which accompany the middle and inferior hemorrhoidal vessels. There may also be retrograde spread, although this is not common. (We should not expect a lesion at seven cm. to spread to the inguinal nodes, although a carcinoma of the anus may do so.)

The left colon is removed along with the rectum because, to remove the mesentery and mesenteric lymphatics, both of which may contain tumor, the

Cancer teaching activities at the University of Kansas Medical Center are aided by grants from the National Cancer Institute, U. S. Public Health Service and from the Kansas Division of the American Cancer Society.

inferior mesenteric artery must be ligated at the aorta. This devascularizes most of the descending colon since one cannot depend on collateral blood supply. With this procedure it is necessary to remove a large segment of colon which is not actually involved by tumor. Occasionally polyps or, rarely, a second carcinoma is found in the remaining portion of the colon.

Limited Resection

Results after limited resection compared to those after more extensive procedures are appreciably different. In a small series of patients here, approximately 90 per cent of the patients without lymph node metastases who undergo complete left colectomy with removal of periaortic lymphatics for cure are alive at the end of five years. The average five-year survival for those patients with lymph node metastases who have the extended operation is about 65 per cent. The five-year survival figures for patients with exactly comparable lesions who undergo only a segmental operation are approximately 10 per cent for those with, and 40 per cent for those without, lymph node involvement. It seems apparent, therefore, that the more extensive procedure offers a considerably better prognosis. There are some patients with carcinoma of the rectum in whom there are additional polyps in the remainder of the colon. In these cases, particularly when there is a strong family history of polyposis, we consider a total colectomy.

We have a patient in the hospital with an interesting history which I mention because of the present-day controversy about the behavior of polyps. It is asserted by some that polyps are never premalignant and that, although they may be benign or malignant, they do not develop from one state to the other. Spratt, Ackerman and Moyer found that among 425 adenomatous polyps of the colon, only one had abnormal cells infiltrating the stalk; further, among 325 cancers of the colon, no evidence of residual adenomatous polyp could be identified. The frequency of occurrence of adenomatous polyps in cancerous and non-cancerous colons of persons over fifty years of age was the same. They believe that the observed frequency of small adenocarcinomas arising in non-polypoid colonic mucosa is adequate to explain the annual incidence of carcinoma of the colon of 45 per 100,000 and conclude that the theory of adenocarcinoma of the colon arising in polyps has little to support it.

On the other hand, Helwig,[2] in a study of 1,460 large intestines at necropsy concluded that there is histologic and cytologic evidence that adenomas of the colon and rectum may undergo malignant transition. To establish the development of carcinoma in an adenoma, two of the following changes were necessary: (1) anaplasia, (2) irregularity of architecture, (3) invasion. He presents further data concerning age of the patient and sites of predilection that support the concept of a close relationship between adenoma and carcinoma of the large intestine. Similarly, Wheat and Ackerman, in a study of 50 cases of villous adenoma of the large intestine, considered that carcinoma developed in eight cases. Our patient almost undoubtedly has had a premalignant polyp. He had a polyp of the rectosigmoid ten years ago; biopsy at that time was reported as benign. He did not have it removed at that time although he was advised to do so. He came into the hospital this time with a frank carcinoma in the same area. This case gives fairly well documented evidence that a polyp, if it remains long enough, may become malignant.

May we have the pathological findings in this case?

Pathological Findings

Dr. Boley: The gross specimen contains a tumor which involves all but two to three cm. of the circumference of the rectum. There are no polyps in the proximal portion of the resected segment of colon. Microscopically, it is evident that tumor fills the submucosa and, toward the center of the lesion, invades the circular muscle layer. In another area it penetrates the longitudinal muscle layer and the serosa to form a nodule on the external surface.

The tumor cells are arranged in an acinar pattern so the lesion cannot be strictly regarded as anaplastic. However, there are tumor emboli in lymphatics, so lymph node involvement should not be surprising. It is not as well differentiated as many carcinomas. The periaortic nodes and the high nodes near the mesenteric vessels are free of tumor. The nodes close to the primary carcinoma do contain tumor, two nodes being nearly replaced by tumor. The tumor in the nodes is more anaplastic than the primary and does not form acini, thus showing that one cannot always tell what the appearance of a primary tumor will be from examination of the metastases.

In summary the lesion is a Stage III carcinoma with invasion into subserosa and with lymph node metastases. This implies a poor prognosis.

Dr. Friesen: As Dr. Boley has said, the presence of lymph node metastasis makes the prognosis somewhat worse than if the patient had had no lymphatic involvement.

This patient does have a chance for cure, but one can't be absolutely certain. For this reason and because only local lymph nodes were involved, this is

the type of patient on whom I would advise a "second-look" operation to pick up those areas in eight to ten months which were not noted at the time of this operation. This is the type of case in which a "second-look" operation has not only academic or investigative merit, but also real therapeutic merit, based on our experience that a few of our cases have been converted to a cancer-free state through the use of "second-look" procedures.

The case today demonstrates that cancer should be suspected in patients of any age. Further, for carcinoma of the rectum, the more extensive type of resection with removal of mesentery and mesenteric lymphatics, offers a better prognosis than the limited segmental resection.

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1958-59 Health Statistics

Not counting military personnel or civilians in mental or other long-term institutions, the American people had, all told, about 24 million impairments during the 12 months July 1957 through June 1958. The impairments included such chronic or permanent defects as paralysis, deformity, and total or partial loss of hearing and vision. This was the finding in the latest in a series of published statistical reports issued by the U. S. National Health Survey of the Public Health Service.

The rate of impairments during the 12-month period was 141.4 per 1,000 persons in the civilian, non-institutional population. The report does not show the total number of persons with impairments. This total would be somewhat less than the number of impairments, since many people, particularly older people, have more than one impairment.

For some specific conditions, however, the number of impairments reported represents the number of people affected. These conditions include visual impairment, hearing impairment, speech defect, mental retardation, cerebral palsy, and loss or absence of extremities.

Thus, blindness—defined in this report as the inability to read ordinary newsprint even with the help of glasses—was reported for an estimated 960,000 people, a rate of 5.7 per 1,000 persons. In addition, 2,064,000 people were reported to have visual impairments less severe than blindness, the rate being 12.3 per 1,000.

About 109,000 persons were reported as totally deaf, a rate of 0.6 per 1,000 persons; and other hearing impairments affected 5,714,000 individuals, a rate of 33.9 per 1,000. Other conditions reported frequently were paralysis and other defects of the limbs, back, and trunk; and speech defects.

For all impairments, the proportion caused by injury was 33.0 per cent; 41.8 per cent for males and 22.2 per cent for females. The types of impairments having the highest proportions due to injury were loss or defects of extremities. The types least often due to injury were speech defects and blindness.

Impairments increased with advancing age from 52.9 per 1,000 persons at ages under 25, to 615.0 per 1,000 at ages 75 and over. Of all impairments reported, 82.2 per cent had been attended by a physician at some time.

The figures are derived from the continuing nationwide household interviewing conducted for the Public Health Service by the U. S. Bureau of the Census with a representative sample of the population. The information recorded about individuals is confidential and only statistical totals are published.

The new report is "Impairments, by Type, Sex, and Age, United States, July 1957-June 1958," Public Health Service Publication No. 584-B9. Copies are for sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at 25 cents a copy.

The President's Message

DEAR DOCTOR:

One does not have to be a profound observer or even particularly politically astute to realize that the two major divisions of our political parties no longer are the Democratic or Republican party as we have known them in the past. While they carry the names by which our forefathers knew them, their philosophies of government are greatly changed.

In our federal government we now have the liberal-labor group as opposed to the conservative-southern group. There is now, and will be in the next few years, a relatively silent, but nonetheless fierce, struggle for supremacy among the two ideologies.

This writer has just returned from a trip to the nation's Capital to attend the hearings on the Forand Bill before the House Ways and Means Committee. The hearings were conducted in a most acceptable, democratic manner with proponents and opponents of the bill given equal opportunity to espouse their cause. The testimony of the proponents made this observer, with built in midwestern conservatism, sit up and take notice. There can be little doubt that labor is intent on pushing for the welfare state with a strong central government firmly in control of your destiny and mine—and that of our children. The day of free and individual enterprise is in imminent danger of being submerged by, and subordinated to, the state.

Whether you agree with the preceding paragraphs or not, I came away from Washington with a firm conviction that we, as a people, are derelict in our responsibilities as citizens. Our elected representatives are not insensitive to our thoughts and wishes. They request and value the opinion of their constituents. You and I, the public, are prone to neglect letting our lawmakers know what we think on these important subjects. Instead, the professional politicians and lobbyists, because their views are so widely expressed, mold and create congressional opinion to suit their own ends.

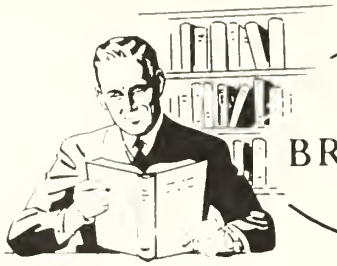
What, as doctors, can we do? We need to take a more active and personal interest in politics no matter how distasteful this may seem. The ideal place to start is at the local level. This means attendance at precinct meetings with participation in discussion on local, state and federal matters and financial contribution to the party and candidate of your choice. Only by concerted effort of like thinking people can legislative action be directed.

Let each of us voice our convictions and actively participate in the affairs of our government. You and the government will both be better for it.

Fraternally,

Glenn R Peters MD

President



Just BROWSING

The detailed descriptions of diseases by the masters of the past never fail to excite admiration for their powers of observation and expression. One of these examples is the description by James Parkinson of that disease which is now commonly known by his name. Following are some excerpts from that description, written in 1817:

"So slight and nearly imperceptible are the first inroads of this malady, and so extremely slow is its progress, that it rarely happens, that the patient can form any recollection of the precise period of its commencement. The first symptoms perceived are, a slight sense of weakness, with a proneness to trembling in some particular part; sometimes in the head, but most commonly in one of the hands and arms . . . in less than twelve months or more, the morbid influence is felt in some other part. . . . After a few more months the patient is found to be less strict than usual in preserving an upright posture: this being most observable whilst walking. . . . Walking becomes a task which cannot be performed without considerable attention. The legs are not raised to that height, or with that promptitude which the will directs, so that the utmost care is necessary to prevent frequent falls. . . . The submission of the limbs to the directions of the will can hardly ever be obtained in the performance of the most ordinary offices of life. . . . The patient seldom experiences a suspension of the agitation of his limbs. Commencing, for instance in one arm, the wearisome agitation is borne until beyond sufferance, when by suddenly changing the posture it is for a time stopped in that limb, to commence, generally, in less than a minute in one of the legs, or in the arm of the other side. . . . The propensity to lean forward becomes invincible, and the patient is thereby forced to step on the toes and fore part of the feet, whilst the upper part of the body is thrown so far forward as to render it difficult to avoid falling on the face . . . can no longer exercise himself by walking in his usual manner . . . being . . . irresistibly impelled to take much quicker and shorter steps, and thereby to adopt unwillingly a running pace. . . . The power of conveying the food to the mouth is at length so much impeded that he is obliged to consent to be fed by others. . . . As the disease proceeds towards its last stage, the trunk is almost permanently bowed, the muscular power is more decidedly diminished, and the tremulous agitation becomes violent. The patient now walks with great difficulty and unable any longer to support himself with his stick, he dares not venture on this exercise, unless assisted by an attendant. . . . As the debility increases and the influence of the will over the muscles fades away, the tremulous agitation becomes more vehement. . . . The power of articulation is lost. The urine and faeces are passed involuntarily; and at the last, constant sleepiness, with slight delirium, and other marks of extreme exhaustion, announce the wished-for release."

His prediction of a cure for the disease has not, as yet, proved to be as accurate. Perhaps we may yet fulfil his expressed hope that ". . . there appears to be sufficient reason for hoping that some remedial process may ere long be discovered, by which at least, the progress of the disease may be stopped. It seldom happens that the agitation extends beyond the arms within the first two years; which period, therefore, if we were disposed to divide the disease into stages, might be said to comprise the first stage. In this period, it is very probable, that remedial means might be employed with success: and even, if unfortunately deferred to a later period, they might then arrest the farther progress of the disease, although the removing of the effects already produced, might be hardly to be expected."
—*O.R.C.*

The Business Side of Medicine

Your Life Insurance Program

FLOYD F. WEHRENBERG, ***Kansas City, Missouri***

One of the questions most frequently asked by a doctor—and one of the most difficult for him to answer—is, "How much life insurance should I have?" The following rule of thumb has been given: that you should have a minimum of four times your annual income or maximum premiums of 10 per cent of your earnings. However, there is no standard reply. Too many factors are involved. You must consider your outstanding financial obligations, your children's educational needs, an adequate income to your wife in case of your death, and your own retirement plans.

You will, of course, need to realize that all of these things should not be provided for solely through life insurance. Your insurance program must be coordinated with your other investments. If not, you may well be paying out money for unnecessary protection.

Planning Your Program

Planning your life insurance program is an important, but very individual process. Here is some general information that will be helpful to you in deciding what to do.

1. The primary purpose of life insurance is to give you protection. It is the cheapest and best protection you can buy.

2. While term insurance has no cash value, it is least expensive of all for protection only. Be certain that you get renewable and convertible term insurance if you buy.

3. Ordinary life insurance provides protection with a cash value. It is the lowest net cost and lowest premium whole life insurance you can buy. Different plans are available.

4. Endowment insurance emphasizes savings rather than protection. Its investment yield is low and protection is limited; however, it is a forced savings plan for those who might otherwise not be able to save.

5. Annuities are also primarily a savings plan and can be purchased in many types. They are a means of providing a fixed income, particularly to older persons.

There are still other available plans that can be explained to you by your insurance agent. You will want to know what is available and what you are getting. You should also look into the history of the insurance companies, compare the cash surrender values, the loan privileges and the optional modes of settlement, as well as the premiums. Annual premiums are most economical. On other than an annual basis, you can estimate that you are paying approximately three per cent to four per cent interest.

Careful attention should be given to the modes of settlement you select. Lump sum payments are useful for settling outstanding obligations, taxes, or funeral expenses.

Installment payments for a fixed period assure the beneficiary of a fixed income for a definite time. You will want to be certain you have provided the income for the length of time the need will exist.

Proceeds may be left with the company at interest to provide for emergency or educational funds.

Income options are available in various types. If you select a certain period, be sure it covers the length of time your children will be dependent.

Mr. Wehrenberg is Missouri-Kansas manager, Professional Management Midwest, 4010 Washington Street, Kansas City, Missouri.

The Tax Angle

Finally, don't overlook the tax angles! Insurance policies are varied and difficult to read. Many mistakes have been made in the purchase of life insurance. Your wisest move is to select a reliable insurance agent whom you trust and make him responsible for your program.

In summary remember that life insurance can be purchased for protection or for savings. Your foremost aim in purchasing insurance should be to get the most protection for the lowest cost without sacrificing safety.

Before buying insurance for old age security or financial emergencies, don't overlook other sources of investment. Select the way or combination of ways best suited to your objectives and income, and you can be certain your insurance program is right for you.

Physicians' Entertainment Expense Deductions Defined

A recent tax ruling by the Department of Internal Revenue defines a physician's entertainment expense deductions as follows:

"1. A physician may deduct on his federal income tax return the costs of entertainment, provided he can establish to the satisfaction of the Internal Revenue Service, by appropriate evidence, that such expenses are ordinary and necessary business expenses and clearly related to the production of business income.

"2. The amount of the deduction must be proven and its reasonableness determined. Once the amount is established, the deduction may be claimed when the doctor is able to show that the entertainment had a direct relationship to the conduct of his practice, and can show the business benefit reasonably to be expected from the expenditure. The general statement that he hoped or expected to get referrals or patients as a result of the entertainment is not enough. If personal reasons predominate, the expenditure may not be deducted, even though there is some possibility of a business benefit. Except in the case of industrial physicians, entertainment of individuals who are not doctors will not ordinarily qualify because the possibility of benefits to be expected are so remote as to be negligible. In some instances of the entertainment of patients, the same general rules apply as in the entertainment of other doctors, and the clear relationship of the expenditure to reasonably expected income must be shown. The same rules also apply to civic and other club dues.

"Criteria to be used in establishing the deductibility of entertainment expenses include, but are not limited to, the following:

(a) Specific purpose of entertainment.
(b) Nature of the practice of the doctor incurring the expenditure.
(c) Period of time the doctor has been in practice and the number of patients he already has.
(d) Percentage of his patients received as referrals.
(e) Names of individuals entertained and reason why additional income could be expected from each.
(f) Whether or not referrals were actually received from the doctors entertained and any indication of the effect of the entertainment on these referrals.
(g) Number of times individual doctors were entertained during the year, inasmuch as repeated entertainment indicates a personal motive.
(h) Whether or not other doctors in the same type practice in the locality have entertainment expenses."—*The Pennsylvania Medical Journal.*

Medical Education

The reply of F. J. L. Blasingame, M.D., Executive Vice President of the American Medical Association, to seven questions asked by the Honorable Clark W. Thompson, member of the House of Representatives from Texas, appears worth repeating. Doctor Blasingame's reply follows in its entirety.

"Dear Congressman Thompson:

Thank you for your recent letter and your interest in medical education.

It is indeed a pleasure to bring you an up-to-date report on the status of medical education in the United States. As you know, I am proud of the accomplishments of our medical schools and have great faith in their ability to train enough physicians to meet the needs of our growing population.

You asked seven important questions about the medical education picture. Let me answer them one by one.

First, has the number of physicians graduated from approved medical schools kept pace with the growth of the Nation's population? Over the long haul, the increase in medical graduates is much greater proportionately than is the increase in the population. From 1920 to 1958, the percentage of increase in medical graduates from approved schools was 125 per cent, compared with a 64 per cent increase in population. In the past 20 years, the percentage figures are fairly comparable: 32.1 per cent increase for graduates; 33.4 per cent increase for population.

The future, I believe, looks bright. Each year, for the past 11 years, the number of students enrolled in approved medical schools has increased. This boost in enrollment amounts to 29.6 per cent (from 22,739 to 29,473).

Your second question was whether medical schools seek to restrict the number of medical students. Two factors make it necessary for a school to establish an arbitrary top enrollment figure: facilities and budgetary funds available to operate the school. Each school faculty determines the number of students who can have a sound education with the faculty personnel and the facilities available to the school.

Medical education is a graduate educational experience following the completion of the regular college course, and because of the subject matter covered requires individual and small group instruction. To turn out well-trained, highly qualified physicians the school requires a large faculty of skilled educators, plus sufficient teaching and research laboratories, hospital beds and clinical patients. The number of students that can be taught must be necessarily restricted to fit the facilities so that the emphasis can be on quality of the graduate rather than on the quantity of students.

Third, you asked: What is the ratio between applicants to medical schools and those accepted? The answer is 1.97 (15,791 applicants for first year medical school to 8,030 places available). This ratio has remained about the same for the past 5 years.

Incidentally, a common confusion that arises in discussing applicants to student ratio is mistaking applications for people (applicants). Each person applies, on the average, to four medical schools. Thus, for the 1957-58 academic year, the 15,791 applicants filed a total of 60,946 applications.

Next, you asked if it is true that only students with an A college academic record are accepted into medical school. That has never been true. About one-sixth of the entering medical students for the whole country have A college records, about two-thirds have B records, and about one-sixth have C records.

Your fifth question was: Is the number of medical schools increasing in the United States? In 1944, there were 77 approved medical schools, including eight 2-year schools from which students had to complete their final 2 years of medical education in any of the 69 4-year schools. In 1958, there were 85 approved medical schools. Eighty-one are 4-year schools; only four, 2-year schools.

Two other schools are under development. As a step toward still further expansion of medical school facilities, the American Medical Association last year

urged 'institutions of higher education where medical education has not been undertaken in the past to give serious consideration to the development of opportunities in the field.'

Sixth. Has the American Medical Association anything to do with the number of enrollments in medical schools? Enrollments are strictly determined by each individual medical school. Neither the universities nor their medical schools would permit an intrusion into their academic freedom by a national professional association.

Your final question asked whether I think it is necessary for Federal funds to be provided for medical schools. The medical profession welcomes one-time Federal grants for medical school construction and renovation as well as Federal grants for basic research. The profession has been opposed to continuing Federal aid for operating expenses because of the potentialities therein for Federal control.

I should like to point out that the National Fund for Medical Education, which raises funds from industrial sources, and the American Medical Education Foundation, which raises funds from the medical profession, have made grants in excess of $10 million to medical education over the past 8 years.

I hope this information will aid you in analyzing bills introduced in the 86th Congress which pertain to the training of physicians. As further background, I am sending along a copy of the most recent annual report prepared by our council on medical education and hospitals, which was published in the *Journal of the American Medical Association,* November 15, 1958. It provides additional data that you might find useful.

I am happy that you wrote me after conferring with our mutual friend, Dr. John Truslow. If I can provide any additional information, please make your wishes known."

Executive Assistant

On July 1, 1959, James S. Imboden joined the staff of the Kansas Medical Society as Executive Assistant, to fill a vacancy which occurred in the resignation of Rueben Dalbec.

Mr. Imboden, now in his early 30's, has been a resident of Topeka for the past 11 years. During this time, he taught in the Topeka public schools, worked with the Topeka Chamber of Commerce, and until coming to the Society, was affiliated with the New England Mutual Life Insurance Company.

Since Mr. Dalbec's resignation, approximately 20 applications had been received for this position. The president carefully reviewed all information available about each of these applicants. Four were submitted to the Executive Committee and this Committee in session on Saturday, June 27, recommended Mr. Imboden.

The Society is proud to have Mr. Imboden in the Executive Office. He will shortly visit the component societies to become aquainted with the physicians of Kansas and will, besides being office manager, assume responsibility over many of the committees and other projects in which the Society is interested.

With Mr. Imboden and Mr. Dallas Whaley, who is Managing Editor of the JOURNAL, and who will in addition to those duties also give some time to other Society sponsored projects as an Assistant Executive Secretary, the Kansas Medical Society now once again has a full complement of employees and with the coming of the fall activities can be in position to render to its members, other associations and agencies, and the general public, a larger service than ever before.

State Society Dues

A private firm of accountants in New York City recently completed its report of activities of 49 state medical societies. This project has been in operation for approximately one year and contains much comparative information about activities carried on throughout the United States. The report is dated June 29, 1959.

Available from this source is the amount of dues collected by each of the constituent associations. The report identifies states by name and is available in your Executive Office, should any member have specific questions to ask. Here, however, is offered one segment of the report, that relating to state dues.

Four states charge dues of $25. None have dues of lesser amounts. Three of these states are relatively small, one is large in population.

Twenty-six states have dues ranging over $25, including $50, of which ten are $50. In 12 states the dues are over $50, including $75. Five states charge more than $75 but less than $100. Two states, both of them low in population, charge more than $100 for annual dues. One is $120, the other $145.

Four states charge the same dues as are charged in Kansas. In 18, the dues are equal to or below the Kansas assessment and in 31 states the dues are higher.

It might also be of interest to note that in 11 states, membership in the A.M.A. is mandatory, and in nine states, contribution to A.M.E.F. is included in the annual dues.

Automobile Safety

The Kansas Medical Society has a Committee on Safety, which requests advice from the membership

concerning activities in this field that may be beneficial.

On July 6, of this year, the American Medical Association submitted a report of recommendations on automobile safety which will become an item on the agenda of the Kansas committee. The American Medical Association has expressed an interest in this subject through activities of the House of Delegates repeatedly since 1929, and since 1955 has had a continued Committee on Medical Aspects of Automobile Injuries and Deaths.

This committee states:

"As the result of our studies, we are convinced that if speed, recklessness, and drunken driving are controlled, and if improvements in automobile engineering are provided to protect those involved in collisions, then the present appalling toll of injuries can be substantially reduced. We are further convinced that enough facts are at hand to accomplish this purpose."

The committee emphasizes that driving is a privilege rather than a right and recommends development of better medical standards for driver licensing. A guide book on this subject for state licensing agencies has been prepared. Also prepared is a guide for physicians in determining the individual's driving fitness and a pamphlet designed for popular use entitled "Are You Fit to Drive?"

A further major concern has to do with improvement of safety design in the construction of automobiles. The American Medical Association committee lists this as promising. "Improvement of the design and safety equipment of automobiles promises the greatest possibility for rapid reduction in the automobile injury and death toll." Nine specific recommendations are made:

1. Anchorage for seat belts should be standard equipment. The public also needs education in the value of seat belts. The only evidence so far presented against seat belts is in the number of deaths in sports cars during roll-overs. This is not an argument against seat belts but against the design of such cars which do not provide roll-over bars. It should be quite simple to incorporate such a bar in the windshield and a second one back of the seat.

2. Crash padding of the dash, roof, and other areas should be provided.

3. An improved steering wheel and recessed post; perhaps a collapsible assembly.

4. Safety door locks should be standard in all cars.

5. Removal of dangerous knobs, buttons, sharp edges, and other gadgets.

6. Seats should be securely anchored to the floor of the car and should be locked into position. They should also be high enough in the center to protect the neck in a rear-end impact and prevent neck-snap injury (also called whiplash).

7. Eliminate the deck behind the rear seat as a storage place for flying missiles or provide it with an effective retaining rail or construct it as a recessed pocket.

8. Eliminate sharp, pointed hood ornaments. These fill no functional need and are potentially lethal to pedestrians.

9. Eliminate other hazardous exterior design features such as sharp, pointed bumper ornaments.

In addition to the above, the committee makes further suggestions on the subject of improved shock absorbing bumpers, polarized headlight lenses with oppositely polarized windshield spot, improved glass design to meet optical standards, protective sideswipe bumpers along the sides and warning reflectors for the sides of automobiles. They suggest the provision of accurate speedometers with an audible warning device to denote when safe speed has been passed. A further suggestion is to make some of the ornaments like chrome and expensive gadgets optional equipment and to install safety equipment as standard features of automobiles.

In 1955 the following resolution was adopted by the American Medical Association House of Delegates:

"WHEREAS, Traffic accidents in the United States claim 38,000 lives and 1,250,000 injured each year, with a probable 45 per cent increase in vehicle mileage in the next ten years; and

"WHEREAS, This death and accident toll could be materially reduced through improvement in automotive safety design and construction; and

"WHEREAS, All other modes of public transportation except automobiles are already safeguarded by Federal safety standards, therefore be it

"*Resolved*, That the American Medical Association, through its House of Delegates, strongly urges the President of the United States to request legislation from Congress authorizing the appointment of a national body to approve and regulate safety standards of automobile construction."

This is the framework within which the Kansas Medical Society Committee on Safety will begin its activities. Further ideas from the membership are most welcome.

Watermelon Fantasy

Do watermelon seeds or juice counteract high blood pressure? Well, such claims have been made, says a consultant writing in the *J.A.M.A.*, but there is no convincing evidence that watermelon or its seed extract has any medical value other than through power of suggestion.

Men at Work on K.M.S.-B.S. Relations

In letters to Blue Shield, physicians have a way of making their points very clear.
Examples—

"Your anesthesia payment under Plan A is ridiculous." . . . "Your request for a pathological report is completely unreasonable and I am sure that you are sufficiently informed of general medical practice to realize that a biopsy of this tumor is practically unobtainable." . . . (A radiologist writes, "Your description of the 50 per cent X-ray Rider is misleading to the patient and regardless of his income makes him think that half of my fee is covered.") . . . "I must vigorously protest any attempt to base payments solely on any set of rigid numbers no matter how arrived at or by whom." . . . "I am not only interested in having these particular claims corrected, but would like to feel that my patients and I do not have to regard Blue Cross-Blue Shield management with suspicion. I have induced many persons to join and do not want to feel that they are going to be let down."

Complaints such as these form part of the grist for the relations mill. Of course, each individual physician's complaint or suggestions must be handled properly and fairly. It is a year round job in dealing with the several hundred complaints received. However, in perspective, out of 140,000 cases between doctors and Blue Shield, the complaints are relatively few in number.

Broader Problems

Relations work involving direct contact between Blue Shield and the individual Participating Physician is one part of the job, but another and equally important part comes about due to the broader questions which have to be considered. For example, a large national employer writes, "Will it be possible for your Plan to offer our employees in Kansas a $6,000 service income ceiling?" Another broader question from the Blue Shield Commission, "What position will your Plan take in regard to the American Medical Association statement concerning the development of a good prepayment program for the aged?"

A good relations program must aim at handling and solving the individual problems and also to find a way to channel the decision-making on the broader problems. The purpose of this discussion is to demonstrate the team approach which has been followed by Blue Shield in Kansas to carry out its relations program with the physicians of Kansas. The essence of the Kansas physician relations approach is based on the idea of relating to physicians through physicians.

At the basis of our relationship is the sponsorship and control of Blue Shield by the Kansas Medical Society through its House of Delegates and organized committees. K.M.S. House of Delegates is recognized as the highest authority in the organizational structure of Blue Shield as shown by a chart on the following page.

The decision-making process and the communications methods which are followed in arriving at decisions is carried forward by Blue Shield in its work with three key committees:

1. The Committee on Fee Schedules
2. Committee on Blue Shield Relations
3. Joint Conference Committee

W. J. Reals, M.D.
His Job Is Fees

Dr. W. J. Reals, Wichita, heads a 15-man committee of specialty representatives. Their function is to arrive at equitable relationships in the relative value of the various procedures. The Committee on Fee Schedules thinks of its work as not only helping Blue Shield in recommending payments, but also in dealing with *all* statewide schedules. This committee has just successfully produced a Relative Value Index for Kansas which has received nationwide attention. Its main job ahead is to develop a basis of surveying physicians' charges in Kansas and adjusting the Relative Value Index as indicated. The function of the committee is to recommend to Kansas Medical Society and Blue Shield the proper relationships in the payment of procedures.

O. R. Cram, M.D.
His Job Is Policy Recommendations

Dr. O. R. Cram, Larned, heads a committee of 17 physicians representing each of the Councilor Districts. Major policy questions for Blue Shield are taken to this committee for recommendations and modifications. The recommendations of this committee on major matters proceed to the House of Delegates.

Recent accomplishments of this committee:

- Resolution favoring Plan C passed by the House of Delegates
- Resolution permitting local medical societies to negotiate special agreements with Blue Shield
- Resolution on the further study of utilization by local hospital staff utilization study committees

Major job this year:

- Setting up staff committees for the study of utilization in each hospital
- Recommendations on changes in Blue Shield Plans A and B for the 1960 House of Delegates.

K.M.S.-B.S. Joint Conference Committee

Dr. E. J. Ryan
Emporia
Blue Shield President

Dr. Glenn R. Peters
Kansas City
K.M.S. President

Dr. O. R. Cram
Larned
Relations Chairman

Dr. Francis Collins
Topeka
Blue Shield
Past President

Dr. James B. Fisher
Wichita
Blue Shield
Vice-President

Dr. W. J. Reals
Wichita
Fees Chairman

Their Job Is Broad Planning

This committee, established in 1958, was successful in producing the Statement of Purpose of Blue Shield which was accepted by the Blue Shield Relations Committee and the House of Delegates. It is the purpose of this committee to provide a means for joint planning by the Kansas Medical Society and Blue Shield in the process of establishing policy on major matters.

Their work this year: Exploring with the Kansas Hospital Association a basis for developing a program for the Senior Citizens of Kansas in conformance with the American Medical Association's statement that local medical societies should develop such programs.

JOINT STAFF OPERATIONS

Oliver Ebel
His Job Is Coordinating

As Executive Secretary of K.M.S., Oliver Ebel coordinates the work of all committees. By working with Blue Shield in the matter of policy questions and timing, he keeps the relations machinery running. His meeting schedule is fabulous, not only in his work with Blue Shield, but in the planning of well over 200 meetings of society committees and conventions during the year.

K.M.S. Executive Secretary

Jim Parmiter
His Job Is Interpreting

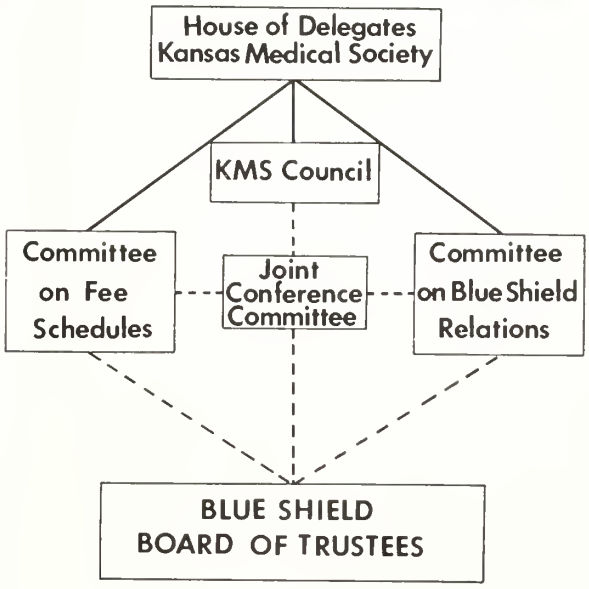
As manager of Physician Relations, Jim Parmiter MEETS with outside group of physicians, KEEPS Participating Physicians adequately informed on Blue Shield policies, INTERPRETS physicians' attitudes and needs to Blue Shield, not to mention a certain amount of TROUBLE SHOOTING.

Manager, Physician Relations

Proctor Redd
His Job Is Programming

As Director of Professional Relations of Blue Cross-Blue Shield, Proctor Redd's job description indicates that he is "responsible for developing and maintaining harmonious workable relationships with all professional groups in the health care field." Thus, this job calls for programming the Blue Cross-Blue Shield relations activity with hospitals and physicians to the end that policy questions are handled by the appropriate relations committees.

Professional Relations Director



Love, Skill and Mystery, a handbook to marriage. By Theodor Bovet. Price $3.50. P. 183. New York, Doubleday & Company, Inc., 1958.

This is not a scientific publication but is rather a common sense treatise on marriage written in the tradition and experience of a marriage counselor. It might serve as an excellent reference by the doctor to prospective marital partners.—*J.A.S.*

Epilepsy. By Manfred Sakel. Price $5.00. P. 204. New York, Philosophical Library, Inc., 1958.

This small book on epilepsy makes for interesting reading of the descriptive approach to the convulsive disorders. It adds nothing in the way of new knowledge and in many ways does not conform to modern views, both neurophysiologic and clinical, having to do with the subject. It is the last contribution of a man who has contributed much in the field of psychiatry and particularly to insulin shock therapy.—*J.A.S.*

Psychopathic Personalities. By Harold Palmer. Price $4.75. P. 175. New York, Philosophical Library, 1957.

This small book may serve as a handbook reference for practicing psychiatrists, particularly into the various nosologic entities of their specialty. Brief discourses on psychopathic personalities, schizophrenia, depressive states, etc., are presented succinctly. For those practitioners who desire a ready reference to the various psychiatric clinical entities, such an edition would serve a useful purpose in their libraries.—*J.A.S.*

Correlative Neuroanatomy and Functional Neurology. Ninth Edition. By Joseph G. Chusid and Joseph J. McDonald. P. 337. Los Altos, California, Lange Medical Publications, 1958. Price $4.50.

The fact that this most useful treatise on neuroanatomy from a clinical standpoint is entering its ninth edition is adequate testimony to its usefulness, particularly to the student of clinical neurology and neuroanatomy. Careful and useful anatomic diagrams plus numerous commentaries on various clinical states make this handbook a most effective source of reference for the medical student, the student of neurology, and also the practitioner of clinical medicine.—*J.A.S.*

BOOKS RECEIVED

Books received by the Journal of the Kansas Medical Society *are acknowledged in this column. Selections will be made for more extensive review in the interests of readers as space permits. Members of the Society, from time to time, review these books and their critique is presented in this section. The reviewers receive the complimentary book from the publisher for their efforts.*

A TEXTBOOK OF MEDICINE—Ed. 10. Edited by Russell L. Cecil, M.D., Sc.D., Professor of Clinical Medicine, Emeritus, Cornell University, and Robert F. Loeb, M.D., Sc.D. Hon. Causa., LL.D., Bard Professor of Medicine, Columbia University. 1,665 pp. and Index. Illustrated. Price $16.50. W. B. Saunders Co., Philadelphia, Pa. 1959.

PATIENT CARE AND SPECIAL PROCEDURES IN X-RAY TECHNOLOGY—Carol Hocking Vennes, R.N., B.S., formerly Surgical Supervisor and Clinical Instructor, University of Minnesota Hospitals, Minneapolis, Minn., and John C. Watson, R.T., Director of Courses in X-ray Technology, University of Minnesota Hospitals, Minneapolis, Minn. 203 pp. Illustrated. Price $5.75. The C. V. Mosby Co., St. Louis, Mo. 1959.

HYPERTENSION—The First Hahnemann Symposium on Hypertensive Disease. Edited by John H. Moyer, M.D., Professor and Chairman of the Department of Medicine, Hahnemann Medical College and Hospital. 790 pp. Illustrated. Price $14.00. W. B. Saunders Co., Philadelphia, Pa. 1959.

FUNDAMENTALS OF OTOLARYNGOLOGY—Ed. 3. A Textbook of Ear, Nose, and Throat Disease. By Lawrence R. Boies, M.D., Professor of Otolaryngology, Chairman, Department of Otolaryngology, University of Minnesota Medical School. 510 pp. Illustrated. Price $8.00. W. B. Saunders Co., Philadelphia and London. 1959.

YOUR MIND CAN MAKE YOU SICK OR WELL—by Curt S. Wachtel, M.D., member of American Chemical Society, New York State Medical Society, the New York Academy of Sciences, the New York Council of Surgeons, and Fellow of Psychosomatic Medicine. 244 pp. Price $4.75. Prentice-Hall, Inc., Englewood Cliffs, N. J. 1959.

The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL *reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.*

In Most Cases the Fees Are Reasonable

What do you think of your family doctor? Is he efficient, dependable and is he charging you a fair fee for his services?

In 99 per cent of the cases here in Coffeyville, we would bet most of the people would tell you they have a lot of confidence in their doctor's ability, and that he earns every penny he makes.

We fall in that category. This is the reason we were a bit upset over President Eisenhower's recent request that doctors keep their fees within reason. The request was reasonable, but it did open the avenue of thought for some people that all doctors overcharge for their services.

This simply isn't fact.

We would be the last person in Coffeyville to argue that our doctors aren't well paid. Some of the fees they collect make the receivers' income tax payments look small by comparison. But when those bills are analyzed item by item, in most cases the totals become less unreasonable.

When you take into consideration the time and effort it takes for one to become a doctor, and the gravity of their work, it is easier to understand why they must be well paid for services rendered.

Another consideration is the amount of money required for a doctor to equip his office, pay his staff and keep up with the latest advances in medicine. It is no small amount any way you look at it.

We think they earn every nickel they charge—in most cases.—*The Coffeyville Journal, June 16, 1959.*

To Give Us More Doctors

With the ills of a growing population to be treated and the mysteries of cancer, heart disease, and mental illness yet to be solved, the function performed by trained medical men in the interests of our national welfare continues vital. How well fitted our physicians are for the task depends largely on the teachers in our medical schools. Retaining capable medical teachers poses a continuing problem because they, as teachers throughout our educational system, are often not as well rewarded as they should be.

Anything that can be done to encourage talented teachers to remain at their academic posts is, therefore, to be welcomed.

Such a step is the Medical Faculty Award program of the Lederle Laboratories Division, American Cyanamid Company, which has given $1,500,000 to 91 outstanding young physicians since 1954.

This year $279,000 in three-year grants is being divided among just 13 promising instructors or assistant professors, an average of $20,720 each. In some cases this will pay the recipient's full salary. In others, it will be in addition to the salary he receives and it is hoped will enable the faculty man to earn as much teaching as he might in industry or private practice.

Dr. Maxwell Finland of Harvard is chairman of a committee of medical educators which chooses the recipients in the field of anatomy, biochemistry, microbiology, pathology, pharmacology, physiology and medical genetics. It also includes Dr. Windsor C. Cutting, Stanford; Dr. Harry F. Dowling, Illinois; Dr. Robert F. Pitts, Cornell; Dr. George Sayers, Western Reserve; Dr. Morris F. Shaffer, Tulane; and Dr. Douglas H. Sprunt, Tennessee.

In our demands for better health care, we need a constant source of physicians. They will be needed in clinics and hospitals and also in the armed services, the public health service and in laboratories of all kinds.

The Lederle Medical Faculty Awards are a step by private enterprise toward educating doctors in

the great numbers that will be required. It is heartening to know that other companies are following the public spirited lead of the Pearl River, N. Y., firm in this important field of education.—*Great Bend Daily Tribune, July 16, 1959.*

Research and Industry

While the battle for new industries is being waged by the dozens of local industrial development associations and Chambers of Commerce throughout the state, it may well be K.U.'s new engineering Science Research Center that will be the weapon to help industrialize this entire area.

The importance of the new project, that involves a comparatively few people and few dollars, is yet to be realized by the people of Kansas. It will be housed in a $200,000 building and will start with an annual budget of $50,000, which during a five year period, will increase to a half million.

Chancellor Franklin Murphy refers to the new Center as "potentially one of the most significant developments in the history of the university." And there is plenty of support for his belief that it will provide "vital support to industrial expansion . . . in Kansas and other parts of the midwest."

The *Topeka Daily Capital* says that "Doctor Murphy is not alone in the belief that the availability of adequate research facilities is essential to the decision on locating industry. The state of North Carolina has been advertising in nationally circulated magazines its 'research triangle,' an area between Duke University, North Carolina State college, and the University of North Carolina. The most prominent feature of the triangle is a new Research Institute, the first achievement of the new North Carolina Research Foundation. Its facilities are being freely offered to industry."

Quoting from a recent article in the *Wall Street Journal,* attention is called to the steady and rapid growth of space age industry in the Boston area. The Massachusetts Department of Commerce estimates that about 250 of them have set up shop in the vicinity of Boston. The reason? The *Wall Street Journal* says this is "the most highly developed research climate in the United States. . . . It offers a rich supply of scientific skills, stemming in part from the presence of Massachusetts Institute of Technology and Harvard; an intangible but nonetheless important, atmosphere of 'creativity' and a cultural and recreational environment that the companies believe keeps scientists and engineers happy."

At the beginning the three or four professors who will staff the Center will apply their efforts towards basic research instead of gadgetry. The Chancellor already has three or four "nationally known" research professors in mind for the important work to be undertaken. Within five years the staff will be gradually expanded to eight or ten senior research engineers as well as 30 or more co-workers such as post doctoral fellows and research associates.

Chancellor Murphy has the rare talent of being able to make dreams come true and he considers this new Research Center essential, in his self-styled "almost fanatical conviction" that industrial development in years to come will rely more heavily on research centers than anything else in determining new plant locations.

Under his direction the University of Kansas Medical Center developed within the span of a few years into one of the most important institutions of its kind in the entire nation. Without his vision and abilities to make them become reality, the tremendous strides by the Medical Center could have lagged for many years.

By the same token, under his direction, the new Center promises to grow with equal rapidity in making the University of Kansas one of the important places in the world in the field of research.

And one of the most important aspects of the new Center will be its influence in retaining the brilliant young minds being trained and educated in Kansas that heretofore have been going to other states.

"From the mountain of knowledge that they will build, all of us will be able to see farther and better" Dr. Murphy said. And industry will see Kansas and the Midwest more clearly with this progressive step forward.—*Great Bend Daily Tribune, June 30, 1959.*

Overcoming Excess Hair

Eighteen of 21 women bothered by excessive hair growth had excellent to good results from taking small daily doses of prednisolone, a synthetic hormone, report Drs. William H. Perloff, Bertram J. Channick, John H. Nodine, and Harry E. Hadd, M.A., of Temple University School of Medicine. In each case, the hairiness was apparently due to overactivity of the adrenal glands which then produced excessive amounts of certain hormones, they write in the *A.M.A. Archives of Internal Medicine.* The synthetic hormone apparently combatted this tendency. The value of this finding is expected to be limited by the fact that prednisolone can cause severe side effects in some patients and must be used only under close supervision.

There are hardly two creatures of a more different species than the same man, when he is pretending to a place, and when he is in possession of it.

—*Lord Halifax*

Washington HIGHLIGHTS

This summary of Washington news is prepared by the A.M.A. Washington Office for distribution to state medical journals.

President Eisenhower's power of veto has been a powerful weapon in his fight against big spending programs of the Democrats.

His outstanding use of the power so far in this session of Congress was the veto of the Democratic, catch-all $1,375,000,000 housing bill. Mr. Eisenhower said the measure was extravagant and inflationary. He warned that the fight against inflation could not be won "if we add one spending program to another without thought of how they are going to be paid for and invite deficits in times of general prosperity."

Housing Bill

The housing bill included three provisions of interest to the medical profession. One provision, endorsed by the American Medical Association, would have authorized Federal Housing Administration guarantees of loans for construction of proprietary nursing homes. The second provision would have authorized direct federal loans for housing for interns and nurses. The third would have authorized both such loans and guarantees for housing for elderly persons.

Mr. Eisenhower objected to direct loans for housing for the aged. But he directed his main attack against the legislation's public housing and urban renewal provisions.

The President also vetoed a wheat price support bill which, he charged, "would probably increase . . . the cost of the present excessively expensive wheat program."

The threat of a veto also caused the Democrats to retreat and cut back their airport construction legislation.

These actions improved prospects for a balanced, or near-balanced, budget in the current fiscal year. Another factor working for a balanced budget is the economic upsurge which means more federal revenue than originally estimated.

But Congress voted more for medical research than the President wanted. However, all of it may not be spent because the President has the authority to hold back part of it.

The Senate voted $481 million and the House, $344 million, for the National Institutes of Health—as against $294 million requested by Mr. Eisenhower. It was mandatory that a House-Senate Conference Committee, in working out a compromise between the House and Senate figures, approve a larger amount than the President requested.

Forand Bill

The House Ways and Means Committee held hearings on the controversial Forand bill which would finance medical and hospital care of the aged through the social security system. Witnesses for the medical profession vigorously opposed the legislation. Dr. Leonard Larson, Chairman of the A.M.A. Board of Trustees, and Dr. Frederick C. Swartz, Chairman of the A.M.A. Committee on Aging, presented the A.M.A.'s views.

Representatives of various state medical societies either testified or presented statements in opposition to the legislation which would be financed through higher social security taxes and which would cost about $2 billion a year.

On another legislative front, A.M.A. witnesses—Dr. George M. Fister, a member of the A.M.A. Board of Trustees and Chairman of the A.M.A. Council on Legislative Activities, and Dr. Vincent W. Archer, a member of the A.M.A. House of Delegates and the A.M.A. Committee on Federal Medical Services—testified before the Senate Finance Committee in support of a House-approved bill (Keogh-Simpson) that would provide tax deferrals for self-employed persons who invest in qualified pension or retirement plans.

Dr. Fister testified that high taxes and inflated living costs make it "difficult for the self-employed person to set aside adequate funds for retirement without a tax deferment similar to that available for corporate employees."

Live Polio Virus Vaccine

Experts from 17 nations gave favorable reports on use of live polio virus vaccine at a week's confer-

ence sponsored by the World Health Organization and the Pan American Health Organization.

However, the 61 experts conceded in a statement summarizing the conference discussions that problems remain in use of the vaccine which is given orally. Their main concern was with "the very difficult problems in the development control and evaluation of the safety and effectiveness" of the live vaccine. They also recognized that "the use of a product that spreads beyond those originally vaccinated represents a radical departure from present practices in human preventive medicine."

An advisory committee of the U. S. Public Health Service recommended a fourth shot of Salk polio vaccine as routine for children and adults under 40 years of age. The report also said that Salk vaccine shots could be beneficial for persons over 40 but was "less urgent" because they had polio less frequently than younger people.

Surgeon General Leroy E. Burney of the Public Health Service also issued an urgent warning that tragic polio outbreaks might occur this year if communities didn't push polio vaccination campaigns.

Relative Value Units

The Medical Society of the District of Columbia adopted a relative value scale of fees expressed in units rather than dollars. The basic unit of 1.0 is a routine office visit. The other relative values for medical services are multiples of the basic unit. For example—an appendectomy, 30 units; allergy skin tests, 2.0 units per 10 tests with a maximum of 15 units for multiple tests; anesthesia, first half-hour or any fraction thereof, 4.0 units.

It is not mandatory that the District Medical Society members charge fees conforming to the relative value scale. It was designed to show the relative value of a physician's services, particularly for health insurance purposes.

The A.M.A. House of Delegates unanimously approved last year the study of relative value scales by state medical societies.

Smart Drivers Use Seat Belts

Seat belts cut injuries more than half. Seat belts are important personal protection equipment. Like the hard hats, safety glasses and hard-toe shoes used in industry, seat belts help decrease the severity of accidental injury or prevent injury when accidents occur.

The findings of Cornell University's Automotive Crash Injury Research confirm this. Two groups of accidents were compared. The accidents were selected to make them as identical as possible in all respects except that the passengers in one group wore safety belts. In the group without belts, the frequency of injury was 75.5 per cent. The frequency of injury among those with seat belts was only 29.9 per cent—a statistical difference for 60.4 per cent.

How Do They Work

In many ways the human body is remarkably durable. It can survive far greater jolts than are experienced in most auto crashes, provided it does not strike, or is not struck by, some hard or sharp object. Col. John P. Stapp, director of the Air Force Aero Medical Field Laboratory, has subjected himself to crash stops from 632 m.p.h. to 0 in 1.4 seconds. *To get the same effect, you would have to drive an automobile at 120 m.p.h. into a brick wall.*

Col. Stapp suffered no disabilities because he was held in his seat by safety belts. He survived, as many car drivers with seat belts do, by coming to a comparatively gradual stop.

When a car crashes, the motorist without a seat belt to stop him flies forward at unreduced speeds—for a split second still uninjured—until he hits something solid. This is the impact that kills and maims. It is the violence of the *reduction* in speed, not the speed itself, which kills. Thus, even low speed collisions can produce high deceleration rates. Seat belts help prevent injury by letting you slow down and live.

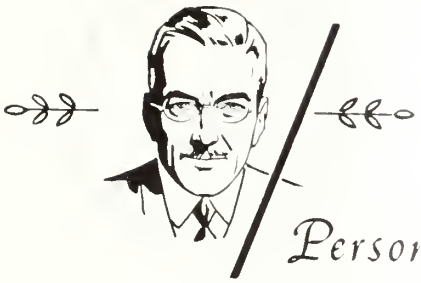
Who Says?

The American Medical Association, the Public Health Service and the National Safety Council, among others. Existing safety programs must continue to be strengthened because the best insurance is not to have an accident in the first place. But the seat belt is the best self-help now available to cut the toll of dead and injured—if an accident does happen.

Choosing a seat belt need not be a problem, if the buyer insists on an approved belt that measures up to the safety belt standards set by the Society of Automotive Engineers. These S.A.E. standards cover such matters as breaking strength, ease of releasing buckle and resistance to abrasion and corrosion.

See that the belt is installed according to the manufacturer's instructions that come with the belt. The most practical style of belt fastens across the lap, with the belt securely anchored to the floor pan of the car frame just behind the seat. A frame rail of cross member provides the most reliable anchorage, because the sheet metal of the floor may be weakened by rust or corrosion. However, the belt ends can be fastened to the car floor with safety if the floor pan is in good condition and the recommendations for installation are followed.

By despising himself too much a man comes to be worthy of his own contempt.—*Frédéric Amiel*



Personalities—IN KANSAS MEDICINE

Dr. D. C. Chaffee, Abilene, will turn his office and practice over to **Dr. Donald C. Rorabaugh** this month. Doctor Chaffee, who has practiced in Abilene since 1946, is going to Topeka where he will be at the VA Hospital.

Doctor Rorabaugh, a graduate of Kansas University, is completing his interneship at Wesley Hospital in Wichita. He will specialize in general practice.

Dr. E. B. Winchester announced the removal of his offices from Mulvane, to Wichita. Doctor Winchester and his family moved to Mulvane in 1957; prior to that time he had been attached to the medical staff at St. Joseph's Hospital.

Dr. D. B. Fuller, Lindsborg, announced last month that **Dr. Gerald L. Starkey** will become an associate in private practice with his office next month. Doctor Starkey is a graduate of the Fort Hays State College, where he earned his B.A. degree. He attended the University of Kansas where he graduated with the degree in medicine. He is a native of Cullison, Kansas.

For the past two years he has been with the United States Public Health Hospital in Anchorage, Alaska.

Doctor Fuller first started his practice in Marquette, and then moved to Lindsborg a couple of years ago.

Hays is to have a new doctor—**Dr. R. E. Bula,** from Lyons, will move to Hays in September. Doctor Bula has been in practice at Lyons for a good many years.

Dr. Charles Pokorny of Halstead, a member of the Hertzler Clinic staff, has been re-elected governor of the American College of Chest Physicians. A recognized authority in the field of chest therapy and treatment, Doctor Pokorny had served two terms as governor for this state.

Dr. Henry J. Dick, a former Emporian, will begin practice in Burlington this month. He is a graduate of the University of Kansas Medical School, and has served his interneship at St. Joseph's Hospital in Kansas City, Missouri.

Dr. Joseph R. Henning, Ottawa, has been appointed Franklin County Health Officer. Doctor Henning replaces **Dr. Harry Ricketts,** who resigned about two months ago. Doctor Henning's new health office appointment began this month.

Dr. Jack Rowlett, Paola, will leave this month to spend a year training in internal medicine with Dr. Mark Dodge and Dr. Arthur Robinson in Kansas City.

Dr. Rex Stanley recently returned to the Miami County Clinic, after spending two years training in surgery at St. Margaret's Hospital, Kansas City.

Dr. L. C. Hays, of Cedar Vale, has been appointed by Governor Docking to the Advisory Commission Sanatorium, succeeding **Dr. M. T. Palmer,** Scott City.

Dr. Vernon E. Wilson, who has been Acting Dean of the Kansas University School of Medicine since May 15, resigned last month to become Dean of the School of Medicine and Director of the Medical Center at Missouri University at Columbia.

Dean Wilson will remain in his present post until the return of Dean W. Clarke Wescoe, who is on leave on a teaching and research fellowship at the University of the Philippines in Manila.

Dean Wilson has been the Assistant Dean of the K.U. Medical School. He will assume the Missouri deanship on November 1.

Drs. Alfred Paul Bay, Karl Targownik, Roland Filippi, Paul Feldman, Ernesto Lis, Dean Collins, Thomas Clanon, Barbara Bliss, Ronald Chen, Erwin Rothrock, James Levy, and **Kenneth Durfee,** all attended the annual meeting of the American Psychiatric Association held at Philadelphia. At the meeting, Doctor Bay was appointed chairman of the Section on Mental Hospitals for the annual meeting of the A.P.A.

Dr. Edward Greenwood, Topeka, spoke before the National Congress of Parents and Teachers in Denver, Colorado, recently. His subject was "Interrelationship Within the Home." Doctor Greenwood also attended a meeting on the juvenile delinquency program in Bethesda, Maryland. **Drs. D. B. Foster, Joseph Stein,** and **John Segerson** were auditors at the American Neurological Association meeting in Atlantic City last month.

Dr. Bernard Hall, Topeka, participated in a guidance and counselling workshop entitled "Helping the Adolescent to Grow—Intellectually, Spiritually, Emotionally and Socially," in Salina.

"The Community's State in Its Mental Health Program," was the subject **Dr. Erwin Kartus,** Topeka, spoke on before the Boone County Association for Mental Health in Columbia, Missouri. Doctor Kartus has left the Menninger Foundation in Topeka and has entered private practice in Kansas City, Missouri.

The Topeka-County Commission recently appointed **Dr. Darrell J. Weber** to the City-County Advisory Board on Health for a three-year term. He succeeds **Dr. Robert Braunsdorf,** whose term expired in May.

Dr. Carl K. Zacharias has recently joined the Dodge City Medical Center. He and his family came from Wichita where he has been taking postgraduate work at St. Francis Hospital for the last seven years.

Dr. and Mrs. Zacharias came to the United States from their native Germany in 1952, and are naturalized citizens. Doctor Zacharias' home-city was Hamburg, and his undergraduate medical work was at Goettingen University. He specializes in orthopedic surgery.

Dr. Robert F. Shaw, Claflin, moved his office to Hoisington last month. He has recently built a new clinic building in Hoisington where he will establish his practice.

Dr. E. T. Gersson plans to open a new office building in Atwood in September. **Drs. Robert F. Shaw** and **Robert J. Unrein** also plan to move into new quarters soon at Hoisington.

Dr. William J. Collier and **Dr. Guy E. Finkle,** McPherson, have recently announced that they have a new associate. He is **Dr. J. Richard Johnson** from Marquette. Dr. Johnson has only recently been discharged from the Air Force after serving two years as a medical officer at Oxnard Air Force Base in California. He is a graduate of University of Kansas Medical School.

Dr. K. M. Rottluff, Bonner Springs, received an eulogy from the local Rotary club recently for winding up 25 years of service as a physician in this community.

He and his wife are planning to resettle at Newport, Oregon. He was also recognized for 100 per cent attendance of the civic club for a total of 1,100 meetings in 23 years.

The Kansas Wing of the Flying Physicians of America met recently at Manhattan. Nine physicians dropped in out of the blue and lunched together for more than an hour. The arrangements for the meeting were made by the Wing's secretary, **Dr. C. F. Taylor,** Norton. After the combination breakfast, lunch, and chit-chat, the group was treated to a special tour of the new Tuttle Creek Dam by members of the local Chamber of Commerce.

Several of the doctors brought their wives and one his two sons. Attending the *fly-in* at the Manhattan airport were: **Drs. L. C. Hays,** Cedar Vale; **J. W. Koons,** Liberal; **L. W. Bauer** and wife and sons, Smith Center; **R. O. Brown** and wife, Atchinson; **L. N. Speer,** Ottawa; **G. W. Fields** and wife, Scott City; **C. F. Taylor** and wife, Norton; **W. C. Schwartz,** Manhattan; and Mr. D. F. Whaley and wife, Topeka.

The Wing has several of these *fly-in* meetings each year, and the more than 50 Kansas members also participate in the national association's cross-country events, the next of which will be held in Oklahoma in September. Any flying doctor interested in participating contact Dr. Taylor.

County SOCIETIES—CURRENT ACTIVITY

A concentrated one day clinical course in dermatology will be conducted by Dr. Clayton E. Wheeler, Department of Dermatology, University of Virginia, in Wichita on November 15. The course is designed around the demonstration of illustrative cases using confusing cases to clarify the differential diagnosis. Only one lecture, the schematic plan for establishing a diagnosis, will be given. The course will be eminently practical, repeatedly emphasizing the steps taken in making a diagnosis and the principles of treatment. This clinical course in dermatology will be conducted at the Sedgwick County Medical Society Building and will be sponsored by the Midwest Medical Research Foundation.

The **Wyandotte County Medical Society** was recently commended by the Joint Board of Health of Kansas City and Wyandotte County. The commendation was for the help its members rendered in assisting the department in administering polio shots. Working on the team, the society helped make it possible for the department to administer an average of from 500 to 600 shots daily.

A special polio immunization clinic sponsored by the **Neosho County Medical Society** was held recently as a result of the recent outbreak of polio cases in that area. Approximately 750 children received shots forming a line of parents and children for four blocks outside the clinic.

The Leavenworth County Medical Society has recently appointed a committee to investigate a problem which made headlines in their local newspapers regarding the handling of violent mental patients. This committee submitted a report to the Leavenworth County commissioners suggesting various ways to handle seriously disturbed patients such as confining those of more disturbed nature to a county home.

Dr. Paul Williamson of Houston, Texas, was a guest of Dr. Y. E. Parkhurst, Belle Plains. Doctor Williamson has become quite well known as the author of several medical books, the latest concerning the overseas medical placement program. Doctor Williamson spoke at the **South-Central Tri-County Medical Society's** meeting at Harper last month.

He resides on his boat, "The Down," located in the Gulf of Mexico.

The Golden Belt Medical Society held a meeting last month at the Manhattan Country Club in Manhattan, Kansas. The program consisted of a panel discussion on "A Community Approach to Juvenile Problems." Dr. Stuart Averill was moderator. He is the medical director of the Boys' Industrial School, Topeka, Kansas. Others on the panel were E. J. Phares, Clinical Pathologist, Kansas State University; John E. Dieter, Probate Judge, Dickinson County; Gerald Ponpon, Police Department Investigator, Junction City; G. Harris Collingwood, Rector, Episcopal Church, also from Junction City. Refreshments were served and the dinner was held at the Country Club. The Golden Belt Society was guest of the **Riley County Medical Society.** The Golden Belt Medical Society was organized in 1889.

The Rush County Medical Society held a polio clinic at the Rush County Memorial Hospital last month.

The clinic was expressly for certain pre-school and public school children.

KMS Obituaries

Clyde F. Smith, M.D.

Dr. Clyde Smith, pioneer Rossville doctor, passed away at his home June 15. Doctor Smith was 77 years old and was born in Edina, Missouri, in 1881. Doctor Smith practiced medicine for more than half a century (53 years) in Willard and Rossville. He retired from active practice a few months ago. He graduated from Keokuk Medical College of Physicians and Surgeons in Keokuk, Iowa, in 1905, and came to Willard to establish a practice. Shortly thereafter, he moved to Rossville, where he remained the rest of his life. Besides his son, Dr. Orval Smith, of St. Marys, he is survived by his wife and daughter, a brother, and two sisters. He has been a member of this Society since 1933.

John W. McGuire, M.D.

Dr. John W. McGuire, 79, Neodesha doctor, passed away at his home July 16 from a heart attack. He had not been ill previously.

Dr. McGuire was a native of Kentucky and was born at Mt. Sterling, Ky. in 1880. He came to Kansas in 1888 and started practice in Neodesha in 1905. He was active in many civic affairs and was vice-president of the First National bank of Neodesha and a member of its board. In addition to his practice he had been in the banking business for the last 30 years.

Dr. McGuire was former chief of staff of the Wilson County hospital and past president of the county medical society. Four years ago he celebrated his 50th year in the medical profession. He was the first president of the local Lions Club, and was a member of several Masonic orders.

His survivors include his wife, two sons, Robert W. and John W., Jr., and a sister.

J. N. Carter, M.D.

Dr. John N. Carter, a practicing physician in Anderson and Franklin counties for thirty years, died of a heart attack in his Garnett office Friday, June 26.

Dr. Carter was born near Skidmore, Missouri, on October 29, 1899. He took his undergraduate work at the University of Missouri and his medical work at Northwestern near Chicago. He moved to Garnett and started practice in 1929. In 1949 he moved to Ottawa. He is survived by his widow, a son, William E. Carter, and a daughter, Mrs. Virginia Carter Rock.

He has been a member of the Society since 1933. He was also a member of the Franklin County Medical Society.

Walter O. Quiring, M.D.

Dr. Walter O. Quiring, 72, formerly a Newton resident, died July 3, at Hutchinson hospital after an illness of six weeks.

Dr. Quiring was born in 1887, in Newton, and has lived in Hutchinson for 35 years. He was associated with the Gage-Hall Clinic before establishing his own office.

He was a member of the First Presbyterian Church, Rotary, and the Reno County Medical Society, and he was a veteran of World War I.

His survivors include his widow; a daughter, Mrs. Richard E. Orr, of Idaho; a son, Walter O. Quiring, Jr., of Hutchinson; one sister; and two brothers.

He became a member of this Society in 1933.

Announcements

The Southwestern Surgical Congress announces its Second Annual Essay Contest.

The Contest is open to internes, residents, and M.D.'s in active training in general surgery or the surgical specialties, who have been in private practice no more than three years beyond completion of resident, interne, and postgraduate training. Eligibility is further restricted to those individuals who are within the geographical confines of the Southwestern Surgical Congress.

The subject material for the competitive essays shall be either pure investigative or scientific research, or clinical research and investigation, which shall consist wholly or largely of the essayist's contributions. The work is intended to encourage original study and investigation on the part of the essayist himself.

The first prize will be $300, second prize $200, and third prize $100. The essayists whose papers are selected to be read will be the invited guests of the Southwestern Surgical Congress at the Twelfth Annual Meeting in Las Vegas, Nevada, March 28, 29, 30, 31, 1960, this to include the essayists' wives. This includes lodging, meals, and the social functions of the organization, but does not provide transportation to and from the meeting.

Interested persons please contact John A. Growdon, M.D., 1324 Professional Building, Kansas City, Missouri.

Two intensive two-week postgraduate courses in general surgery will be provided by the United States Section, International College of Surgeons, in cooperation with the Cook County Graduate School of Medicine. One will begin August 3 and the other on November 2.

The course will be presented at the graduate school and in the wards and operating rooms of the Cook County Hospital. The program will be under the supervision of the hospital's surgical staff and will include illustrated lectures, motion pictures, anatomy demonstrations, operative clinics, and practice surgery by the participants on anesthetized dogs.

Consideration will be given to surgical technic, surgical complications, and management of the surgical patient, as well as to intensive review of the basic sciences in relation to clinical surgery. The course will comprise 78 hours of instruction, including 20 hours of surgical anatomy on the cadaver. Tuition is $150. Participants will be eligible for formal (category I) credit from the American Academy of General Practice.

Applications should be addressed to Mr. John W. Neal, registrar, Cook County Graduate School of Medicine, 707 South Wood Street, Chicago 12, or to Dr. Ross T. McIntire, executive director, International College of Surgeons, 1516 Lake Shore Drive, Chicago 10.

The Institute of Industrial Health of the University of Cincinnati announces that the fourth biennial course of instruction in *Occupational Skin Problems* will be given during the week of October 26-30, 1959. It will be presented by the Department of Preventive Medicine and Industrial Health, University of Cincinnati, in collaboration with the Occupational Health Program of the United States Public Health Service, and the Department of Dermatology of the University of Cincinnati. The objective of this course is to give physicians a greater understanding of cutaneous problems of occupational origin.

The program will be divided into daily sessions, consisting of morning lectures and clinical demonstrations, afternoon field instruction in industrial

plants, and evening panel discussions. The didactic presentations will include a review of the anatomy, physiology, and chemistry of the skin. Detailed consideration will be given to the etiology, diagnostic evaluation, and treatment of occupational dermatoses, as well as specific measures for prevention and control of these problems. Current concepts regarding cutaneous cancer, allergic reactions and medicolegal problems will be discussed.

Physicians interested in attending the course should write for an application blank to Secretary, Institute of Industrial Health, The Kettering Laboratory, Eden and Bethesda Avenues, Cincinnati 19, Ohio. Early application is advised since attendance will be limited.

The 45th annual Clinical Congress of the American College of Surgeons will be held in Atlantic City, New Jersey, September 28 through October 2, 1959.

More than 10,000 Fellows of the College and guests from all over the world will gather to fulfill the purposes of this Congress: to discover, to inform, and to learn. In keeping with the philosophy of the College that the qualified surgeon never stops extending his knowledge and skills, this meeting will present surgical developments through a wide variety of programs, including nine postgraduate courses, panel discussions, symposia, research reports, motion pictures, color closed-circuit telecasts from Bellevue Hospital in New York, cine clinics, and scientific and industrial exhibits.

The University of Nebraska College of Medicine will offer the first of a ten course series of postgraduate programs September 28, 29 and 30. Dr. Enrique Cabrera, of the Institute of Cardiology in Mexico City, will team with Dr. Eugene Lepeschkin of the University of Vermont to present the three day course in Advanced Electrocardiology. The course fee will be $50. Application should be made to: Office of Medical Extension, University of Nebraska College of Medicine, 42 and Dewey, Omaha 5, Nebraska.

Free Choice of Physician

More than three-fourths of the population of the United States want to choose their own doctor. In addition, they want to assume all or part of the responsibility for paying their doctor bills.

These were among the findings in a survey conducted among a sampling of the adult general population by Opinion Research Corporation for the American Medical Association.

The purpose of the study was to explore attitudes about the choice of physicians.

The study also showed that:

Eighty-eight per cent of the population believe the right to see the same doctor regularly is of vital importance.

Eighty-nine per cent believe that medical care in this country has improved over the past 20 years. Half of these persons ascribe the improvement to more and better research and advances in medical science.

Seventy-six per cent of the people said they wanted to choose their own physicians; 13 per cent saw no difference in whether they or someone else chooses their physician; 8 per cent preferred to have someone else choose, and 3 per cent had no opinion.

In answer to further questioning, 93 per cent of those surveyed felt that free choice would give them more confidence in the doctor; 84 per cent thought doctors would take a more personal interest in them, and 79 per cent believed they would have less trouble getting the doctor to make a home call.

City children lost 9 days from school, on the average, as a result of illness and injury; rural non-farm children lost 7.8 days; and farm children lost 7.3 days. However, farm children 15 and 16 years of age lost about 10 days from school as compared to 6.5 days lost by urban children of these ages.

NEW MEMBERS

Dr. Kenneth E. Bickford
Atwood

Dr. George L. Curran
K. U. Medical Center
39th and Rainbow Blvd.
Kansas City 12

Dr. Henry J. Dick, Jr.
410 Neosho
Burlington

Dr. John D. Foret
K. U. Medical Center
39th and Rainbow Blvd.
Kansas City 12

Dr. Donald C. Greaves
K. U. Medical Center
39th and Rainbow Blvd.
Kansas City 12

Dr. Walter F. Haith
436 Quindaro
Kansas City

Dr. James J. Hamilton
200 Sixth
Wakeeney

Dr. Robert P. Hudson
K. U. Medical Center
39th and Rainbow Blvd.
Kansas City 12

Dr. John E. Johnson
Bethany Hospital
51 N. 12th Street
Kansas City

Dr. Earl D. Merkel
Shields Building
Russell

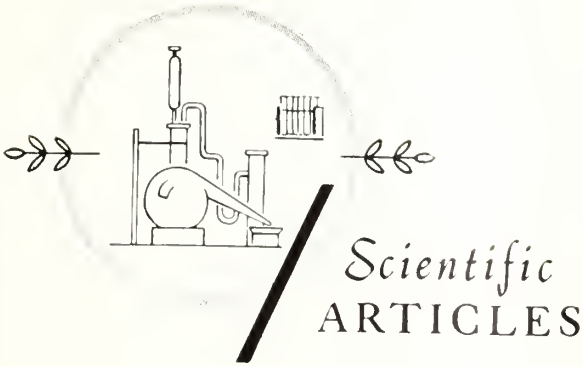
Dr. H. Douglas Miller
737 E. Crawford
Salina

Dr. James W. Rentfrow, Jr.
105 W. 13th Street
Hays

Dr. Eugene T. Siler
107B West 13th Street
Hays

Dr. V. W. Steinkruger
Phillipsburg

Dr. Ralph N. Sumner
712 Madison Street
Fredonia



Kaposi's Disease

An Interesting If Not Well Understood Variety of Sarcoma

J. W. WELCH, M.D.; V. E. CHESKY, M.D., *and*
C. A. HELLWIG, M.D., *Halstead*

Kaposi[8a] in 1872 first described a disease now generally known as Kaposi's sarcoma which he named "idiopathic multiple pigmented sarcoma." In 1894 Kaposi[8b] altered the name of the disease to "idiopathic multiple hemorrhagic sarcoma." Since that time many investigators have assayed to change the name to correspond to their views as to the origin of the disease process. As a consequence many names are extant in the medical literature, but the eponym has persisted and the disease is most commonly known as "Kaposi's sarcoma" or "Kaposi's disease."

Incidence

The medical literature contains over 700 reported cases, many of them isolated case reports. The justification for adding yet another case report to the existing literature is primarily because the case to be presented is an interesting one, and secondarily, to call attention to the fact that the lesion, while not uncommon, may be easily overlooked or misdiagnosed and overtreated or undertreated at various stages of its progress, with painful results. Case reports appearing in the literature at intervals of two to three years should serve to keep physicians aware of the disease, thereby facilitating early accurate diagnosis.

Kaposi's sarcoma is probably more common than the statistics indicate since, in all likelihood, many cases go unreported and unrecognized. The disease has a predilection as to sex, nationality and geographical habitat, age, and site of origin. The peak of frequency of the disease is in the fifth, sixth, and seventh decades of life and the male is more often afflicted than the female by a ratio of 20 to one. Although no part of the world's population is unaffected by Kaposi's sarcoma, it is more prevalent in peoples of Eastern Europe and Northern Italy. The bulk of the statistics indicate that it affects Northern Italians most frequently, followed by Jews, Russians, and Poles; Negroes and Orientals are not immune, but cases are infrequently reported in these races.

A single case report of an interesting case of Kaposi's disease. The disease is reviewed briefly from the standpoint of history, incidence, etiology, diagnostic features, pathology, treatment problems and prognosis. Photomicrographs accompany the pathologic description. The reader is admonished that any measure for control of the disease is dependent upon early accurate diagnosis and correct initial therapy.

Definition

Kaposi's sarcoma is a true but atypical sarcoma of

From the Hertzler Research Foundation, and the Hertzler Clinic, Halstead, Kansas.

Figure 1. Kaposi's disease. Sagittal section of large ulcer of heel.

blood vessel origin characterized by a cutaneous tumor which usually appears first on the distal portion of an extremity as a bluish-red macule which progressively forms other macules which slowly multiply and coalesce to form nodules and plaques. The lesion tends to be unilateral at the onset, later becoming bilateral and progressing to involve the trunk and finally, in about 10 per cent of cases, the viscera and mucous membranes. There are numerous case reports in which the secondary manifestations, such as lymphadenopathy, symmetrical swelling of the extremities and visceral involvement, appear first, to be followed in most cases by the cutaneous manifestations. Alteration in the hemogram is not marked or constant. The most commonly reported changes have been secondary anemia and monocytosis and, less frequently, eosinophilia and lymphocytosis. Flarer has reported the presence of an increased number of abnormal mononucleated cells in Kaposi's disease as well as in mycosis fungoides. Others have reported Kaposi's sarcoma in association with mycosis fungoides[9, 10] and with other malignant lymphomas such as Hodgkin's disease[7, 17] lymphosarcoma,[3] and lymphatic leukemia.[15, 22]

Case History

In September, 1958, a seventy-six-year-old, white female was referred to the Hertzler Clinic with "a sore" on the plantar surface of the right heel present for nine months, two masses present in the right groin for six weeks, and swelling of the right leg for two to three months. The patient was first seen by her local doctor 33 months prior to her admission to the Hertzler Clinic, with a small reddish-blue nodule on the plantar surface of the right heel. The lesion was excised at this time and a diagnosis of angioendothelioma made.

Two months later the patient was seen by a dermatologist and radiologist who diagnosed "a reticuloendothelioma, or an angioendothelioma, or possibly Kaposi's disease" and treated the lesion with 1600 r units, well windowed, at one sitting.

Several months later the patient consulted another group of physicians who did not arrive at any definite diagnosis but informed the patient of normal physical findings and advised her that she had been adequately treated.

The patient remained reasonably well, with a residual sensitive area at the treated site which remained

pigmented, until December, 1957, two years after onset. The involved area of the heel then ulcerated and she was again treated, this time with 2600 r x-rays and 9600 milligram hours of radium followed by 2500 r in five doses to a 2 cm. circle at 200 KV h.v.l, 1 mm. Cu at 50 cm. distance with a Thoreus A filter.

The ulcerated area did not heal and she was placed on additional treatment until August, 1958, with penicillin, streptomycin, and Parenzyme®. From August, 1958, until she was referred to the Hertzler Clinic on September 11, 1958, she was treated with Furacin® ointment locally and chloramphenicol systemically with no improvement.

Physical Examination

The patient's temperature, pulse, and respiration were normal and she seemed in apparent good health for her age (seventy-six). The only positive physical findings were: minor cervical adenopathy, mild benign hypertension of 180/80, a matted adenopathy in the right groin measuring approximately 5 x 3 cm., a large deep sloughing ulcer measuring 2.5 x 2.5 cm., with a grayish floor covered by inflammatory exudate on the plantar surface of the right heel, and 2-plus pitting edema of the right leg and ankle.

Laboratory Procedures

Most of the laboratory findings were within the limits of normal as follows: hemoglobin 81 per cent or 12.5 gm., wbc. 6,850 with a normal differential with 3 eosinophiles; blood urea nitrogen 8.7; urinalysis normal; total protein 5.4, albumin 3.15, globulin 2.25 mgm./100 cc.; Kline negative, blood sugar 91. Bacteriologic examination of the ulcer: coagulase positive, staphylococcus aureus and B. proteus sensitive to chloramphenicol and albapenicillin. Heel x-ray: normal bony structure. X-ray of chest normal.

On September 30 an excision biopsy of the lesion in the right groin was performed under local anesthesia. The pathology report read: Metastasis of anaplastic tumor (sarcoma) in lymph node (Fig. 3). It was then decided to amputate the right leg between the upper and middle third of the tibia in order to rid the patient of an extremely painful ulcer that was apparently recalcitrant to proven methods of therapy. Amputation was advised and accepted by the patient. Accordingly on October 7, 1958, the right leg was amputated at the junction of the upper and middle third of the tibia. At the same time the right inguinal area was re-entered and cleaned of all tumor masses that could be found, in an effort to establish free lymph channels. The postoperative course was smooth and the stump healed by primary union.

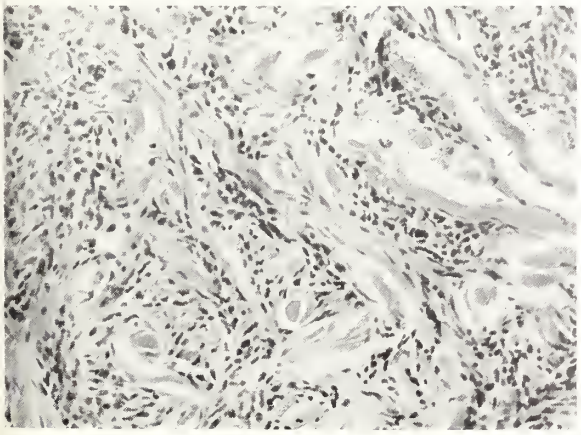


Figure 2. Kaposi's disease. Primary tumor.

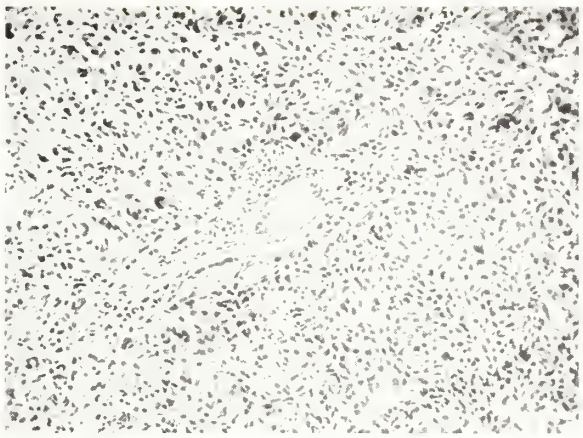


Figure 3. Kaposi's disease. Inguinal metastasis.

Pathologic Report

The gross specimen consisted of the right leg amputated in the middle of the tibia. The leg measured 24 cm. in length. On the plantar surface near the heel was a deep ulcer (Fig. 1) 2.5 cm. x 2.5 x 1 cm. in size, the base of which was grayish in color and covered with an inflammatory exudate. No tumor was palpable. The muscles, blood vessels, and nerves of the leg were dissected and manifested no pathologic changes. Sagittal sections through the ulcer showed a crater 2 cm. wide and 1.5 cm. in depth. The wall of the ulcer was hard and whitish in color, but no invasive growth was seen in the surrounding fat tissue or bone.

Microscopic Report

The ulcer bed was covered with a layer of inflammatory cells and necrotic material (Fig. 2). There was extensive necrosis of the subcutaneous tissue. In the deeper layers tumor growth was noted consisting of spindle cells which varied greatly in size and form, and some of which had unusually large dark-stained nuclei. Tumor cells lined some of the blood vessels, invaded the surrounding tissue in small nodes and in strands, and reached the deeper layers of the

subcutaneous tissues. Some infiltration with plasma cells was noted.

Diagnosis: Kaposi's sarcoma of the heel; deep ulcer with extensive necrosis.

Etiology and Pathogenesis

The etiology and pathogenesis of Kaposi's disease is still controversial. Many hypotheses have been proffered and none, as yet, have been universally accepted. Choisser and Ramsey have categorized the many etiologic theories into four main groups: (1) neoplasm, (2) infectious granuloma, (3) infectious granuloma with neoplastic potentialities, and (4) reticulo-endothelial hyperplasias. The most commonly accepted theory as to origin of the disease process is that it is primary or secondary to chronic hyperplastic inflammation. Recent investigation,[2, 21] however, lends some credence to the carcinogenic hypothesis, since it has been possible to induce similar angiosarcomatous lesions in experimental animals with injection of carcinogens such as azo dyes and hydrocarbons. The sex factor and the influence of sex hormones cannot be ignored since the sex incidence of the disease is so preponderantly male. Andervont's work in which he found a reduction of tumor induction after castration and testosterone pellet implantation, must be acknowledged. Hereditary vascular dysplasia must also be considered in view of the racial preponderance in Italians and Jews. The work of Greco and his group, who studied the disease in several members of the same family and came to the conclusion that the disease was of infective mycotic origin, must be recognized. Van Cleve and Hellwig also feel that there was an infective agent attacking the vascular and perivascular system with the lesions assuming neoplastic characteristics in predisposed subjects under certain conditions. Such are some of the theories as to etiology; it is not necessary to add: the etiology is unknown.

Diagnosis and Treatment

In a great many instances the first manifestation of Kaposi's disease is the pathognomonic bluish-red well-demarcated macule, easily diagnosed. If the cutaneous manifestation is either late or absent, the symmetrical elephantiasis of the extremities is fairly typical, especially in the presence of lymphadenopathy. A high index of suspicion is necessary if the disease is atypical, but the majority of cases are typical, and it is with these that we are largely concerned.

Treatment

The most effective therapy for Kaposi's sarcoma is irradiation, especially if the lesions are multiple or the disease diffuse. Most lesions, and particularly the early ones, will respond to low voltage unfiltered roentgen therapy at weekly intervals. When the deeper structures, such as bones, lymph nodes, and viscera become involved, higher voltage—200 to 240 k.v. with cross-fire technic—is indicated. If leg edema is present, x-ray therapy should be conservative, since indications of impaired blood supply are present. Overtreatment may result in a chronic painful ulcer and even necrosis, infection, and gangrene.

The role of surgery, electric desiccation, radium, and nitrogen mustard are not too well documented in the literature. McCarthy and Pack utilized practically all modalities of therapy in their series of cases, including excision with scalpel and cautery; radium pack; external and interstitial radon; contact x-rays and 100 kilovolt, 200 kilovolt, and 240 kilovolt x-ray with all gradation of factors. They felt that in an early case, wide surgical excision can yield gratifying results. They believe, however, that surgery is contraindicated if the tumors are extensive or multiple or if edema is coexistent.

The treatment then could reasonably be outlined as wide surgical excision in a single early lesion and conservative doses of x-ray if the sarcoma is extensive or if edema is present. Radium therapy has been disappointing and nitrogen mustard of no value at all.

Prognosis

Contrary to Kaposi's original belief that the disease was rapidly fatal, the clinical course as a rule is long, since the progress of the disease is slow and characterized by remissions and exacerbations. Life expectancy of patients after the original diagnosis has been established is estimated at between five and twenty-five years with the average in the neighborhood of ten years. Death commonly occurs from intercurrent disease since Kaposi's sarcoma has its peak of frequency in the fifth to seventh decades of life. Death from Kaposi's disease is often the result of hemorrhage or emaciation due to visceral involvement.

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'Beeps' From a Heartbeat

A medical instrument that is expected to reduce surgical risks by signaling physicians instantly when it becomes necessary to perform heart massage or other forms of resuscitation was demonstrated at Atlantic City in connection with the annual meeting of the American Medical Association. It's the "heart monitor," a device less than five inches long and weighing only six ounces. It emits "beeping" signals translating the electric-wave activity of a patient's heart.

Each human heartbeat produces one or more small electrical currents or impulses. Measurement of the amplified electrical impulses gives a quicker and more accurate indication of heart condition than can be obtained by monitoring only the sounds of heartbeat, blood pressure or pulse.

When this small self-contained instrument is strapped to a patient's arm and is turned on to transmit its signals, a surgeon listens for any interruptions or changes that may warn of a cardiac arrest or other heart disturbance. Operating-room personnel are thus all alerted instantly to a possible need for heart massage, injection of stimulants, administration of oxygen, electrical shock and other lifesaving measures.

The monitor utilizes a low-voltage, mercury-battery power supply and high-gain transistorized amplifier. It is usually strapped to a patient's left forearm, and an electrode, connected to the monitor by a small wire, is strapped to the patient's right forearm or other part of the body.

In cases where the unit cannot be attached to the patient's forearm (as in surgery on infants) two electrodes or needles can be used and the monitor can be placed elsewhere on the patient's body, or nearby in the room.

A single small switch operates the entire device, turning it on and off and operating the tuner. It is possible to tune in various electrical waves detected and recorded by electrocardiographs. Normally the unit is turned to the "R-wave" activity of the ventricle portion of the heart, the part that performs the blood-pumping function.

The heart monitor was developed by William F. Veling, a Detroit surgeon, and was demonstrated by the National Cylinder Gas Division of Chemetron Corp.

The device is simple to operate and does not require constant adjustment of the visual or manual attention of surgeons and other operating-room personnel. The audible signal can be replaced by a light or other signal for use in recovery rooms or wards, so as not to disturb other patients.

The Nation's Health

The Present and Future Role of the Federal Government

ELLIOT L. RICHARDSON, *Washington, D. C.*

Members and guests of the Kansas Medical Society, I deeply appreciate the honor of being invited to share with you in the celebration of your 100th anniversary. May your affairs prosper mightily in the centuries to come!

For me this is a uniquely pleasurable occasion. While I am a lawyer by profession, I feel more or less at home among doctors. My father, both grandfathers, and several uncles were doctors. Both my brothers are actively engaged in medical practice and research.

I am delighted, therefore, to have this chance to review certain aspects of the role of the Federal Government in the health of the Nation. I do this in the hope that you will find it helpful to hear the problems of medicine and its sister professions described from a point of vantage that may perhaps open new perspectives and permit an objectivity not always possible under the pressing urgencies of daily life and work.

With the exception of a flurry of health activities during and after World War I, the Federal Government played a limited role in family and community health until the thirties. During the First World War, for example, the Public Health Service was authorized to provide extra-cantonment sanitation activities and to inaugurate a venereal disease control program. And when the disastrous influenza pandemic hit the United States in 1918-19, the Congress appropriated $1 million to the Public Health Service to help suppress this disease.

In the postwar period Federal health activities languished. Then the great depression of the early thirties brought the Social Security Act, which prepared the way for wider Federal participation in public health activities. A substantial program of grants-in-aid to the States for general public health purposes was authorized. Later specialized programs for tuberculosis and venereal disease control were added.

Despite these measures the Federal investment in public health and medical research was quite meager until World War II. In 1940 for example, a year in which the Federal budget was $6.2 billion, only $3 million was spent for medical research and an additional $19 million for all other health purposes, including grants to the States.

Delivered at the centennial meeting of the Kansas Medical Society, Topeka, May, 1959. Mr. Richardson is Assistant Secretary of Health, Education, and Welfare.

World War II

At the onset of World War II, with the mass tragedy of 1918's influenza pandemic far from forgotten, there emerged a realization of the vital roles that individual and collective health could and would play in the national security. In the early days of World War II, the Federal Government quickly recognized that a healthy citizenry was vital to winning the war and that bold approaches to the prevention and cure of diseases must have stimulus as well as supplementary financial support.

In consequence the now widely used cooperative approach to medical research was evolved by universities, foundations, industries, and government at local, State, and Federal levels—a pattern that deserves to flourish for a long time to come.

The Federal Government has been participating in health problems to an increasing degree. A discussion considering government participation and responsibilities in medical research, support of medical schools and medical care facilities, and the financing of medical care.

I need not recount before this audience the dramatic medical achievements that have resulted from this cooperative approach to research during the past decade and a half. Never before in history has there been such an extraordinary accumulation of new medical knowledge and such a swift advance in technical methods and skills for the application of that knowledge.

As a result we now have in America a citizenry that is keenly interested in health and generally aware of what is available in medicine. The citizen, the consumer of the medical product, not only expects medical science to go forward at even a faster pace but also insists that the products, techniques, and skills that derive from current achievements be readily accessible to all who need them. Indeed, today the Federal Government is expected to be responsive to a degree unknown in any former time to inexorable demands for medical and public health services which no single group acting alone could ever provide and which all groups in concert can barely meet. At al-

most every point in the spectrum which has at one end the development of new knowledge in the health field and at the other the financing of medical care, the Federal Government has already assumed some degree of responsibility. That responsibility now includes participation with official and voluntary State and local agencies in the formulation of research policies in particular areas, the support of that research, aid to professional and technical education and training, assistance in the construction of new facilities and the renovation of old, help in the prevention and control of disease, consultation and funds to help institutions to effect the most fruitful utilization of scientific and teaching faculties, financial aid to improve and expand institutions devoted to research and treatment, and finally, cooperation in strengthening and complementing private and public systems of financing medical care.

We cannot, therefore (even if we were inclined to do so), start from scratch in attempting to frame legislation designed to strengthen the capacity of the Federal Government to assist in dealing with the health problems of today and tomorrow. As we see it our function is to take such additional action as may be necessary in a manner that will so far as possible preserve and strengthen the pattern of Federal, State, local, and private cooperation that has worked so well in the past. My aim this morning will thus be to show how we in the Department of Health, Education, and Welfare are attempting to apply this approach to the problems in the field of health that seem to us most urgent. In so doing I shall start with medical research, proceed from there to the needs of medical schools and related teaching institutions, describe our present thinking with regard to medical care facilities, and conclude by touching briefly on the financing of medical care.

Medical Research

Amidst all the vast array of urgently needed health, education, and welfare activities, medical research today occupies a favored position. It is the only such activity of which the sole question asked is, "How much can usefully be spent?" Although expenditures for medical research still represent only about four per cent of the Nation's total investment in research and development, such expenditures have more than doubled in the last five years. The Federal Government's share, meanwhile, has gone up by almost 300 per cent.

This phenomenal growth in the support of medical science has, of course, been fed by the very achievements of medical science. Each new discovery reinforces the public demand for still faster progress in the conquest of the cripplers and killers that are mankind's most ancient enemies. The consequences, however, for medical education and for the private agencies and organizations actively concerned with medical research, as well as for government, are so significant and far-reaching as to cry out for careful study and evaluation. To make such a study, former Secretary of Health, Education, and Welfare, Marion B. Folsom, in 1957 appointed a committee of distinguished consultants under the chairmanship of Dr. Stanhope Bayne-Jones, formerly dean of the Yale University School of Medicine and Technical Director of Research, Office of the Surgeon General of the Army. The Committee presented its report, now generally referred to as the Bayne-Jones Report, in June, 1958.

Over the past four months Secretary Flemming has devoted considerable time, with the Surgeon General of the Public Health Service, the Director of the National Institutes of Health, and their staffs, to studying the full implications of this report. He has also reviewed the data obtained from a supplementary study of 20 medical schools conducted by the National Institutes of Health.

Study of 20 Medical Schools

On the basis of these data, it has been possible to project the probable rate of growth in expenditures for medical research and to formulate as a long-range national goal for such research, a total expenditure of $1 billion by 1967. We assume, as a guide for national action, that the support of medical research should continue to be divided almost equally between Federal and non-Federal sources. It is expected, moreover, that the present pattern of support within the Federal Government will be generally maintained, with the National Institutes of Health providing most of the Federal share. This would mean an increase in NIH expenditures for research from $209 million in fiscal 1959 to an annual rate of about $350 million by 1967.

Apart from their significance in establishing long-range goals, these studies have reinforced our firm belief that research, education, and training are inherently inseparable and that a successful research and training effort for the Nation as a whole must be securely grounded upon a sound educational base. For this reason we are more concerned than ever about the urgency of immediate steps to correct the imbalance between medical research and education that has tended to result from the very magnitude of Federal research expenditures.

Our analysis has, for example, confirmed the view that the National Institutes of Health should pay not only the direct costs of any research project which they support but should also pay whatever share of indirect costs—administrative salaries, heat, light and power, maintenance of buildings, etc.—is fairly attributable to that project. Until this is done, each new project undertaken by a medical school will re-

sult in an additional drain on its operating funds, thereby weakening its capacity to carry out its teaching mission. Similarly hospital care will suffer from the diversion of uncommitted income to the support of research. We propose, therefore, at the earliest opportunity, to renew the fight to eliminate the limitation on the payment of indirect costs which for a number of years has been contained in our appropriations acts.

A related problem concerns the very considerable number of medical school and hospital personnel whose salaries are being paid in full or in part out of research grant funds. Under existing law no assurance can be given that such funds will continue to be provided in predictable amounts. The result is that no security of tenure and no firm career ladder in medical research can be offered to the men and women engaged in such projects.

To remedy this and at the same time to make possible a degree of flexibility in the allocation of research funds with a minimum of red tape, we have under consideration legislation that would authorize the allotment to the research institution of a percentage of total research appropriations on an "institutional grant" basis. To the extent in other words of, say, 15 per cent of such appropriations, we would make allotments among research institutions in a manner that did not require specific project applications and that would enable them to utilize the funds for the continuing work of their senior investigators.

Grants for Professional Training

In conjunction with its projection of future expenditures for medical research, the Bayne-Jones Report warned that the present shortages of professional and technical manpower are likely to grow even more critical as research demands increase. Larger numbers of well-trained professional people are going to be needed not only to conduct the search for new knowledge, but to bring this knowledge to our rapidly expanding population in the form of better medical care. Speaking to the latter point, the Bayne-Jones group predicted that "A minimum of 14 or as many as 20 new medical schools will have to be built (by 1970) if the existing number of physicians per 100,000 population is not to fall."

The Public Health Service, with the help of a new advisory group headed by Frank Bane, former executive director of the Council of State Governments, is now systematically studying the whole question of the need for physicians and exploring the ways in which this need may be met. This study, together with the NIH study of 20 medical schools and the Bayne-Jones Report, should provide a strong basis on which to develop national goals for medical education and research.

The Federal Government meanwhile is already making significant contributions toward the reduction of manpower shortages in the health field. The National Institutes of Health, for example, will spend this year more than $60 million in stipends for individuals preparing for careers in medical research, for the support of traineeships for persons intending to become specialists in one of the fields covered by a categorical institute, in grants to teaching institutions for the support of training courses, and for research fellowships. In addition the Public Health Service is spending $57 million for training in water pollution control activities, advanced nursing, and other public health responsibilities.

Assistance to Research and Training Institutions

All these programs—research grants, traineeships, fellowships, even training grants—amount in effect, so far as the research or teaching institution is concerned, to payments for the purchase or reimbursement of services. To the extent that such payments are applied to activities that the institution would in any case feel bound to undertake—and certainly a medical school would be obliged to support a certain amount of research even if no Federal grant program existed—they can, of course, be regarded as aid to the institution. Yet it is equally clear that the research and research-related training programs now being carried out are much larger in volume and different in character than they would be if Federal funds were not available. Indeed the programs would not be serving their purposes if this were not the case, for they were not designed primarily for the assistance of institutions. Frequently in fact, as I hope I made clear in discussing the need for the full payment of indirect costs and for institutional grants, the programs operate as burdens on the institution.

We cannot escape, therefore, the obligation to face squarely the need for more direct forms of Federal assistance to health training and research institutions. For medical schools, dental schools, and schools of public health, particularly, this need is becoming increasingly acute. As President Eisenhower stated in addressing the National Fund for Medical Education a year and a half ago:

> The rapid accumulation of new medical knowledge is flooding in like a tide in the Bay of Fundy. There is on all sides a mounting demand for health services by our communities. Under these demands the medical schools in America today face inherited responsibilities beyond what they are financially able to meet. The medical progress of which we are so justly proud has involved these teaching institutions in a struggle for solvency and survival.
>
> The constantly widening scope and complexity of medical education has, within the space of a few decades, quadrupled the cost of producing a qualified

doctor. Tuition now pays but one-fifth of the student's total education cost.

Accordingly, there is today a great gap to close, the gap between the ceiling of medical school receipts from all sources and the racing increase in costs of teaching, research, and medical care.

Under present law the only Federal program that does provide direct help to medical schools and kindred institutions is the program of matching funds for the construction of research facilities. First enacted in 1956 and extended last year until 1961, this program authorizes expenditures up to $30 million a year for buildings used in the actual conduct of research or for that part of a building to be devoted to research, but not for buildings or parts of buildings used for teaching or administration. Although authority to make grants for the latter purpose has been advocated by the Administration in each of the last three years, the Congress has not yet seen fit to grant it. Budgetary considerations permitting, we shall probably try again. Next time, however, we may modify our earlier proposals by suggesting that grants be restricted to buildings needed in order to expand enrollments or to prevent their reduction.

So far as outright Federal grants for operating purposes are concerned, the only beneficiaries at the present time are the eleven schools of public health. In recognition of the fact that most of their graduates enter public service, Congress last year passed a bill authorizing grants to these schools in an aggregate amount of a million dollars a year. The act was limited to two years in duration and therefore expires in 1960. Assuming that it is to be extended, should it be confined to the schools of public health, be modified so as to restrict it to the support of special projects in public health training, or be expanded to include other types of teaching institutions in the health field? In other words should its significance as a precedent be ignored, brought more nearly into line with the NIH training grant programs, or extended? Most of us in HEW, it is fair to say, especially those of us who have been wrestling with the needs of higher education as a whole, would hesitate long before recommending the latter step.

Aid to Institutions Providing Patient Care

New weapons in the war against disease and training in their use are of little avail if we lack the facilities with which to employ them in caring for the sick. So great has been the need for such facilities, first as a result of the wartime deferment of construction and now because of the population boom, that the Federal Government has for more than ten years been playing a major part in a nationwide cooperative program designed to meet this need. The Hill-Burton Act, which created the hospital survey and construction program in 1948, has been a tremendous success, particularly in building general hospitals. And yet most of the gain in new beds has been offset by increases in population, by obsolescence, and by the abandonment of old facilities as new facilities are constructed. Like Alice and the Red Queen, we have had to run like blazes to stay in the same place.

Eleven years ago we had about 60 per cent of the general hospital beds we needed. Today with the help of almost a billion dollars in Federal funds and more than two billion dollars in State, local, and private matching funds, 75 per cent of the need for general hospital beds has been met. In addition we now have 73 per cent of the tuberculosis beds needed, as compared with 46 per cent in 1948. In mental hospital beds we have slipped from 55 per cent of need in 1948 to 53 per cent today. All in all State plans show a remaining deficit for 888,000 hospital beds of all types and 323,000 nursing home beds.

Hospital Costs Spiral Higher

An equally pressing problem has been the rapid upward spiral in the costs of hospital care, more than 179 per cent in a decade. The search for means of combatting this rise has been a central purpose in the allocation of research and demonstration project funds, $1,200,000 annually, under the Hill-Burton program. In our view the results of experimentation in "progressive patient care" are particularly promising. This, as most of you undoubtedly know, is a pattern of services making use both of physical facilities and of medical and nursing personnel in the manner best suited to the needs of the individual patient. It includes intensive care for critically ill patients, intermediate care for those requiring a moderate amount of service, self care in a hotel type of setting for ambulatory patients, and long-term care for the chronically ill in a homelike atmosphere with periodic evaluation of progress and rehabilitation.

Concern with the high cost of hospitalization also underlies much of our recent thinking with respect to improvements in the Hill-Burton program. In this connection we are laying particular stress on finding ways and means of making the diagnostic and treatment center category of the program more useful. As the Hill-Burton Act now stands, we can make grants for the construction of such centers only where the center is formally affiliated with a hospital. Although we have considered the complete elimination of this requirement, our present view is that it should be removed only for mental health clinics and diagnostic and treatment centers in remote areas.

Lack of Out-of-Hospital Insurance

The limitations of the Hill-Burton Act, however, are not the major barrier to the construction of more facilities for outpatient services. More important is the lack of readily available insurance against the cost

of out-of-hospital care and treatment. It is heartening, therefore, that the health insurance industry has this problem under intensive study and has already taken a number of experimental steps toward providing such insurance. In addition to major medical expense insurance, which from its inception has been applicable to the costs of medical care wherever it may be provided, many insurance companies as well as Blue Shield plans now offer coverage against the costs of physicians' services in the home or office. Meanwhile we are continuing to search for ways of encouraging faster progress in this direction.

So far as facilities for acute care are concerned, the principal contribution of the Hill-Burton program has been toward the construction of *new* hospitals. Rural communities altogether lacking in hospital beds have been the chief beneficiaries. Needed in addition, however, is some form of assistance in financing the cost of repair and modernization of existing hospitals in urban areas. Several approaches to meeting this need are possible—earmarked grants, direct low-interest loans, mortgage insurance, or some combination of the three. These approaches are all under study in the Department. In addition we believe that we should continue to emphasize the importance of experimentation in measures designed to reduce the cost of hospitalization. For this purpose we are considering an expansion of the research and demonstration authority of the Hill-Burton program so as to provide for direct grants—grants, in other words, not included in State allotments—for the building of experimental structures.

One other amendment to the Hill-Burton program that we expect to propose is motivated both by the aim of avoiding unnecessary hospitalization in high-cost institutions and by awareness of the continuing increase in the number of the aged. This amendment would consolidate the chronic-disease hospital and nursing-home categories of the program into a new "long-term care facilities" category and increase the authorized appropriations for this category. For similar reasons we also support the provision in the pending housing bill of mortgage insurance for proprietary nursing home construction, with assurance through State licensing agencies of adequate standards of care.

Disease Prevention Programs

Disease prevention programs are fundamental activities of the U. S. Public Health Service in cooperation with State and local health departments. Although the acute communicable diseases have declined in prevalence, keeping them under control requires unrelenting vigilance. Yet the very success of public health techniques in curbing the acute contagions has been accompanied by a steady rise in the chronic diseases, especially those of the heart and arteries, cancer, diabetes, and the debilitating disorders peculiar to old age. Research and epidemiological investigations into their causes, incidence, and cure are being conducted on a wide scale. So far as prevention is concerned, the greatest unmet need is in health education. Our efforts in this direction need intensification and, if possible, the application of more vigor and imagination.

High priority among preventive health activities must also be given to the problem of maintaining a healthy physical environment. Modern technology, urban growth, and industrialization are daily making this problem more acute. Water pollution, waste disposal, food and drug contamination, smoke and smog, and nuclear fall-out present hazards to health, the seriousness of which is not yet fully known. Radiation hazards in particular demand a comprehensive approach, and the Budget Bureau now has under study the relative responsibilities of the Public Health Service and the Atomic Energy Commission in this field. In addition we in the Department of Health, Education, and Welfare are considering the possible need for some form of assistance to the States in the exercise of their radiological health responsibilities.

Financing the Costs of Medical Care

Even after new knowledge has been won, doctors have been trained, facilities have been built, and everything possible has been done to prevent disease, there remains the problem of paying for medical care. Although we have reached new heights of prosperity in the United States, medical costs represent a serious problem to many American families. In 1957 for example, 44 per cent of all families in this country had incomes below $5,000 and one family in nine had an income below $2,000. As many as one-quarter of all American families today have no cash savings, and in 1958 it was estimated that more than half of our families had savings of less than $500. For these people the costs of long-term and other disabling illness can be a crushing burden, particularly if the victim is the breadwinner.

For most people voluntary health insurance represents the best means of meeting the costs of medical care. Preliminary estimates for December, 1958, show that just over 121 million people, or 70 per cent of the population, then had some form of hospital insurance. Ten years earlier in December, 1947, the 53 million persons with such protection represented 37 per cent of the total population.

There are, however, serious gaps in coverage of our older citizens, less than half of whom have any kind of health insurance. Summarizing an intensive study of this subject for the House Committee on Ways and Means, the Department of Health, Education and Welfare last month reported:

(Continued on page 409)

Severe Early Deafness

Its Effect Upon an Individual's Mental and Emotional Well-being

C. P. GOETZINGER, Ph.D. *and* **G. O. PROUD, M.D.,** *Kansas City*

The effects of severe deafness upon an individual, whether it be congenital or acquired soon after birth, is not understood by the general public and only vaguely by specialists not directly associated with the problems of the deaf. When one stops to consider that the deaf as a group probably number about 200,000 in this country—a rather small minority—it is not surprising that such is the case. Irrespective of this situation, the family physician, as the first to be consulted by the family when a child fails to develop speech, should possess general information relative to the impact of severe early deafness.

Historical Background

According to historians,[8] the evolution of the social attitude toward the deaf paralleled in many respects man's general attitude toward his fellowman. Although only scattered references to the deaf are found in history prior to the 16th Century; nevertheless, they afford information from which a general philosophy may be inferred. Thus it was that in the pre-Christian era, the deaf were regarded as relatively incapable of learning, since the primary medium for the reception of speech, and consequently for formulating thought, was non-functional. Being unable to either receive or send information and thought in the conventional manner—that is, through hearing and speech—the deaf were therefore exceptionally poor educational risks.

In like manner the Hebrew and later the Christian writers, conditioned by the tenor of the times, considered the deaf as childlike and of poor mental competence, but strongly urged compassion toward them. It was not, however, until the Seventh Century that any known reference was made to the education of the deaf. Bishop John of York was reported by St. Bede as having successfully taught a deaf man to talk.

That there was an awareness of the difference between congenital and acquired deafness is apparent from the Justinian Code of the Sixth Century which excluded certain civil rights to those born deaf, while granting them to those with acquired deafness.

With the advent of the 16th Century, a new philosophy of the deaf began to emerge. Though the effects of a succession of pioneers—such as Cardano of Padua, Ponce de Leon and Bonet of Spain, William Holder and his contemporary Wallace, Bulwer of England, Amman of Holland, Dalgarno, St. Francis de Sales of Switzerland, and others—publications concerned with methods for teaching the deaf and their educability began to appear. The tide relative to the education of the deaf might truly be said to have turned in the 18th Century under the influence of two men, the Abbe de l'Epee, founder of the first public school for the deaf in Paris in 1857, and Samuel Heinecke of Germany. Although these men were at opposite poles regarding methodology; nevertheless, their prolific writings did much toward putting the education of the deaf on a universal basis.

This paper acquaints the general practitioner with the historical background of the education of the deaf and the effects of deafness upon an individual's mental and emotional well-being.

The first permanent school for the deaf in this country was founded at Hartford, Connecticut, by Thomas Hopkins Gallaudet. His son, Edward Minor Gallaudet, was subsequently instrumental in the founding of the first and only college for the deaf in the world at Washington, D. C.

Among the pioneers in the education of the deaf in the United States are other illustrious names—such as Alexander Graham Bell, the inventor of the telephone, Sarah Fuller, and Carolyn Yale. In addition there are a host of men whose names seldom, if ever, appear in the recent erudite tomes which have been written about deafness, but who nonetheless, though their contributions remain largely unsung, rank high in the annals of the education of the deaf in this country. We refer to that substantial group of deaf men, who in the face of insurmountable odds, founded or were key figures in founding many of the schools in the United States.[13]

With this brief historical summary in mind, we now turn to the forerunners of psychological investigation of the deaf in this country.

From the Department of Otorhinolaryngology and Hearing and Speech of the University of Kansas School of Medicine.

Capacity of the Deaf

It may come as a surprise to learn that psychological examination of deaf children was suggested by Greenberger in 1889. He proposed that picture books and a number test be used to eliminate the feebleminded from schools. He also advocated block building and the perception of form and color as tests of a child's ability. To quote:

> Building with blocks, arranging with sticks so as to make certain forms, or any childish game can be made the means of finding out whether an applicant is capable of fixing his attention upon a subject, and whether he has any reasoning faculties.[16]

With a few minor changes in the above wording, one wonders if it might not be mistaken readily as a passage from one of our recent textbooks.

Eight years later in 1897, Taylor reported the results of a free association spelling test which was administered to both deaf and hearing children. The deaf children manifested a superiority. A few other studies—such as those by Mott in 1899 and 1900, by Smith in 1903, and by MacMillan and Bruner in 1906—round out what might be termed the pre-Pintner era. The last mentioned study probably represents the first attempt to use standardized tests with deaf children.

After the Goddard revision of the Binet-Simon Scale had been introduced, Kilpatrick was the first to suggest its use or some modification of the test with deaf children. He further urged that a commission be appointed to study the problem. Kilpatrick did not himself attempt a modification of the scale.

After concluding that the Binet Scale, as it stood, was not suited for measuring the intelligence of the deaf, Pintner and his associates began a series of studies of children in schools for the deaf which encompassed intelligence, language, etc. In addition Pintner developed his group non-language mental test, the Pintner Educational Achievement Test, and a Performance Scale. Summarizing their investigations for the period 1914-1918, which involved principally the evaluation of the intelligence of deaf children with the Digit-Symbol Symbol-Digit Tests, the measurement of language ability with the Trabue Scales, and the measurement of memory span for digits, Pintner and Paterson[30] concluded:

1. That the Binet Scale, as it stood, was unsuitable for use with the deaf;
2. That the average orally taught pupils were superior to those manually taught because the bright students were picked for oral instruction;
3. That on mental tests, not dependent on hearing, the average deaf child was from two to three years retarded when compared to the hearing child;
4. That on tests which involve the auditory processes, as memory span for digits and language scales, the average deaf child, irrespective of age, is equal only to the hearing child of seven, eight, or nine years;
5. That there are no sex differences between the deaf;
6. And that there appears to be no difference between the congenital and adventitious deaf child, although on tests which are dependent on audition, those children who lose their hearing after the age of four or five seem to benefit because of having once heard.

These results, therefore, which had involved several thousand children, appeared to offer evidence that the deaf were retarded mentally. Only one study, and that by Newlee a year later in 1919, offered contrary findings. Employing the same Digit-Symbol Symbol-Digit Tests as previously used by Pintner and Paterson, Newlee found her 85 deaf subjects to be the equal of hearing children.[27] The findings, however, were criticized on the basis of selectivity of sample and the small number of cases.

The next step in the psychological testing of the deaf child was the Reamer Survey. This study was reported in 1921. Reamer published results on 2,172 subjects. The aforementioned Pintner Non-Language Mental Test and the Pintner Educational Survey Test were used. In addition the subjects were differentiated as to degree of hearing loss. The audiometer was not yet commercially available. It appeared, however, that Reamer separated her subjects by means of a voice test.

Reamer's findings essentially confirmed the earlier results of Pintner and Paterson. Her deaf subjects showed an average two-year mental retardation and a five-year educational deficit. Children who had retained their hearing until the age of six manifested a definite advantage in educational achievement. Further, there was *practically* no difference between the mental and educational achievement of the partially and totally deaf, whether deafness was congenital or acquired.

Finally, the National Research Council Survey of 1924-1925, reported by Day, Fusfeld, and Pintner, provided more evidence with regard to the mental and educational status of the deaf. This investigation involved 41 schools and 4,432 subjects ranging in age from 12 to 21 years. Again the two Pintner tests were used. The analysis of the data consisted of comparisons between the deaf and the hearing for the age range 12 to 15 years inclusive, between the adventitously and the congenitally deaf, between day schools and residential schools, and between methods of instruction. Also the subjects had received hearing tests with the 3-A audiometer,* and could therefore

* The 3-A audiometer produced a complex signal, not pure tones.

be classified relative to degree of hearing loss.

In short the findings substantiated the previously reported mental and educational retardation of the deaf. With reference to the type of schools, the authors felt that the day schools were making better use of their material. The day schools, however, had a greater percentage of bright pupils and the degree of hearing loss was less. No method was found to be superior to the other.

In 1928 Upshall reworked the data of the National Education Survey. He matched 311 institutional and day school children on several variables. In an important sub-study he equated 83 subjects for chronological age, mental age, degree of deafness and onset of deafness, and controlled statistically, years spent in school and age at school entrance. Furthermore, economic status of the homes from which the children came was rated by the Barr Scale. Among other things he concluded that the day school children were significantly superior to the residential school children. He was inclined, however, to attribute the superiority to better teaching, rather than to differences in methods of teaching.

In the same year, 1928, Drever and Collins in England with their own performance test of intelligence found their deaf subjects to be equal to, or better than, the hearing. These results were in conflict with previous studies, with the exception of the Newlee investigation, and therefore, triggered a chain of studies using the performance type test as opposed to the paper and pencil non-language examination. Two early experiments in particular, showed that deaf children, who were retarded about two years in mental ability on the Pintner Non-Language Scale, to be less than a year retarded on performance tests.[22,24]

In the ensuing years a rather impressive amount of research has indicated the deaf *to be normal, or within normal limits, intellectually when performances scales are utilized.*[2,12,15] When paper and pencil type tests are used, including the Goodenough Draw-a-Man Test, there are conflicting findings.[7,11,24,38]

The divergency of the findings between the paper-and-pencil tests and the performances scales has been a matter of great concern to psychologists of the deaf. It is not possible to discuss here all the ramifications of this problem. However, McKane, after having administered the Pintner Non-Language Mental Test and the Grace Arthur Performance Scale (Form I) to the same group of deaf children, concluded that the tests measured different abilities. More recently, Oleron, and Zeckel and Van der Kolk, as a result of their studies with the Raven's Matrices and Porteus Mazes respectively, have maintained that the deaf are inferior in abstract ability. In accord with the intelligence tests results are those of Heider and Heider, Larr, and McKay in conceptual ability. Then Templin found the deaf to be retarded in explanations of the causes of physical phenomena. Furthermore, the retardation was related to the degree of deafness and the age at onset.

Non-Language Tests

That the non-language and non-verbal tests on the whole are more abstract than the performance scales seems clear. A picture of an apple is more abstract than either a model of an apple or the apple itself. Again, tactual and kinesthetic factors may aid in the solution of performance tasks, whereas such factors do not have a chance to operate in the paper-and-pencil tests. Insofar as conceptualization is concerned, higher levels are probably abetted by symbolic activity as in thought. Thus when there is circumscribed thought contingent upon restricted language development, concept formation does not attain full fruition.

Oleron found the adventitiously deaf to be superior to the congenitally deaf, which is what would be expected in view of the above explanation. Oleron rejects the idea that the inferiority of his deaf subjects proceeded from the cause of deafness or from some factor linked to the cause. He maintained that, while the cause of deafness might operate in some cases, it does not operate on a general scale. Illnesses, he felt, do not explain why the deaf succeed in concrete things.

Reamer's comparisons of the adventitious and congenital deaf show that at all age levels the medians of the former, both total and partial, are above those of the latter. An inspection of Reamer's graphs shows a noticeable rise at age eight in the mental indices of the adventitiously deaf. There is an initial rise at age six followed by a drop at age seven, then a rise at eight which continues to eleven. After age 11.2 there are both rises and drops, but since the number of cases were relatively few, little or no significance can be attached to the curve at this level. This finding again is consistent with the previous discussion.

Brill and Orman studied the ability of deaf children to remember sentences. They concluded:

> . . . that lack of memory for sentences is part of the over-all language handicap of deaf children, and while this specific skill can be improved to some extent by specific training, real and lasting improvement seems to be influenced by other educational factors. Probably only a raising of the total language ability of the deaf child will bring lasting improvement in his memory for sentences.[5]

Later Blair[3] gave a series of memory tests to both deaf and hearing children matched for intelligence,

age, and sex. He found his deaf subjects did as well, or better, on memory tasks which were primarily at a perceptual level, but they were decidedly inferior on memory span tasks requiring mental abstraction or conceptualization. Perceptual functioning is lower in the hierarchy of cognitive behavior than conceptualization. But it is only through language that the full potential of the mind is to be realized. When words and sentences, the tools of language, are improperly or, as it were, poorly assimilated, meanings and concepts to which they give birth are somewhat vague and ill-defined. It follows then that the deaf may be expected to show a deficiency in concept formation, not by virtue of any innate inferiority, but by reason of their lower rate of language growth.

When one stops to consider the laborious manner in which language must be acquired with the auditory channel non-functional from birth, it is indeed remarkable that some of the differences are not greater. In spite of the deprivation of the auditory sense, there are a host of deaf men and women who have risen to the highest levels of conceptualization, if their positions in society and what they have accomplished is any index of their level of mental functioning.

Until now we have dwelled upon the intelligence of the deaf. From the historical point of view this area has perhaps received more attention than any other. It will continue to receive attention in order to more clearly define potential capacity. If potential is present, then more efficient ways and procedure for developing it must be utilized and devised.

Adjustment of the Deaf

A rather large number of investigations have been directed toward the adjustment of the deaf. A variety of research tools, such as paper-and-pencil personality tests, adjustment inventories, behavioral rating scales, devices for measuring level of aspiration, and projectives techniques have been used in the process. The impact of severe deafness upon the social and emotional well-being of an individual could be expected to produce traumatizing effects. Some authorities contend, not without justification, that the loss of hearing later in life has a more marked effect upon personality and adjustment.[2,7] A recent study of Gallaudet College students would appear to indicate that the opposite is the case. In other words the longer one has hearing, the better are his chances of adjustment.

Meyerson, after reviewing the literature concerned with the adjustment of the deaf, concluded that much of what has been reported must be regarded with caution because of the lack of adequate controls, language connotations of the test materials, etc. in many of the studies. As a general finding, investigators who have employed paper-and-pencil tests of personality have indicated the deaf child to be more neurotic, less stable emotionally, and more poorly adjusted than his hearing counterpart. In the few studies in which the Rorschach has been utilized with deaf children, there is agreement that deaf children in institutions present a picture of rigidity and of neuroticism somewhat like the rigid, neurotic, normal hearing child of similar age.

In an unpublished study which was done at the Berkeley, California, School for the Deaf some 10 years ago, Inman and Robinson administered the Rorschach Test to a group of 25 deaf children in the advanced department. One of us, in addition, had given the Wechsler Performance Scale (Form 2), selected pictures from the Murray Thematic Apperception Test and the Bender Gestalt Designs. The basic data of the group which consisted of eight boys and 16 girls were as follows:

	Range	*Mean*
Chronological Age	17-21 years	19.1
Years in School	9-15 years	13.3
Degree of Hearing Loss	67-100 per cent	82.8
Age at Hearing Loss	Birth-3 years	11 months
IQ	87-118	103.4

In addition to these data, the teachers were interviewed relative to the adjustment of the subjects and their school ability. Standard Achievement results were also available.

The tentative conclusion reached as a result of this pilot study was that the personality of this deaf sample could be reasonably well assessed by the aforementioned battery, that the deaf gave evidences of rigidity in their responses, but that in no instance was there evidence of psychopathic behavior. The authors furthermore felt that this type of personality evaluation was significantly related to intelligence quotient and to social and scholastic levels.

With regard to the Haggerty-Olson-Wickman Behavior Rating Schedules, Buchard and Myklebust found deaf subjects who had been in a residential school in residence more than four years to have more behavioral problems than those who had been in residence less than four years. Springer, however, did not find significant differences between a group of hearing impaired children and normal hearing children when matched for age, intelligence, and socioeconomic level.

Several investigators have utilized the Vineland Social Maturity Scale. Avery reported that 50 hearing impaired children ranging in age from 10 months to six years evinced normal social maturity when rated with standard procedure, and slightly above average

when allowance for deafness was made. The children were in a residential school and day programs for the deaf.

Both Bradway and Buchard and Myklebust found children in a residential school for the deaf for the age range five to twenty-one to be retarded in social maturity. The latter investigators likewise reported more retardation in children who had been in residence four years or more as compared to these who had been in residence less than four years. Streng and Kirk, on the other hand, obtained an average social quotient of 96 for hearing impaired children in a day school.

Experiments on the rigidity of deaf children, as well as their level of aspiration, appear to depend on the nature of the task.[7] In some situations the deaf child manifests more rigidity than the hearing child. In other situations there is no difference. Again tasks which penalize the deaf child affect his level of aspiration. Otherwise he does not differ from the hearing child.

With reference to the adult deaf, the results of Myklebust with Gallaudet College students have been cited. To reiterate, adjustment was related to age at onset of deafness. The later the onset, the better was the adjustment.

In Fusfeld's excellent article dealing with the counseling of the adult deaf, findings of Crammette and Friedman, who investigated the traits of deaf adolescents and young deaf adults from the point of view of outstanding deaf persons are summarized. On the negative side the traits most prominent were the following: poor cooperation with others, too much dependence on others, attitudes that they deserve aid, a limited viewpoint, and limited interests. Other negative aspects observed, but not so pronounced, were the following: lack of social responsibility and egocentrism, feelings of not being treated fairly, emotional instability, and a lack of the social graces.

Fusfeld points out that, on the whole, the above picture is consonant with psychological studies of the deaf. On the positive side, however, the deaf possess many laudable characteristics as revealed by the same study. That is to say that, on the average, the deaf are good law-abiding citizens, are group conscious, and work assiduously to defend their rights, are prompt, and apply themselves well on the job, and are *free from race and creed prejudices.*

That many of the negative characteristics associated with the deaf are the result of environment and training is certainly suggested by the literature. Thus Levine who studied 31 adolescent girls in a residential school for the deaf found atypical and immature responses as compared to the normal, but interpreted the results as being representative of adequate adjustment in terms of the particular environmental setting.

Severe deafness, it cannot be denied, imposes a tremendous barrier to adequate adjustment. However, the legions of deaf men and women who have contributed in countless ways to society is a glowing testimony of the fact that the deaf do surmount their handicap. To maintain that deafness leaves no residual effects which cannot be erased, or that all things being equal with the exception of deafness, there are no differences between the deaf and the hearing, would appear unrealistic in view of what is known about the processes of development.

In a recent study Fusfeld had over 100 young deaf adults of both sexes list the advantages and disadvantages of deafness. The disadvantages were numerous and included restrictions such as inability to hear warning sounds, the absence of ordinary social mingling with other people, limitations of speed of learning and educational opportunities outside of the school, vocational problems as related to employer reluctance to hire the deaf, feelings of inadequacy and a sense of frustration, and inability to enjoy music and recreations dependent on hearing.

The advantages enumerated were freedom from discordant sounds, thus contributing to mental rest and repose, the development of enduring friendships as well as numerous social and recreational activities, better educational opportunities, inner poise and contentment, aesthetic values from sensitivity to vibrations and "the harmony of rhythm in the phenomena of action in the life around them." Although the disadvantages of deafness, as listed, outweigh the advantages, nevertheless as Fusfeld has stated:

> . . . the deaf on the whole offer a satisfactory social picture. They attain to wholesome, adequate maturity; they establish homes of satisfying standards; they hold a successful place in the occupational world, given the opportunity, and often in the face of prejudice and blocking; they have a strong group consciousness; they manifest a zest for life in recreation and in travel; they maintain religious affiliation and even have their own religious organizations; they record well in intellectual and scientific accomplishments; they achieve highly in the realm of the aesthetic, as in art. In short, they make good citizens.

With reference to the last sentence, perhaps we should recall a controversy which occurred in this country in the middle of the last century.[13] Mr. John J. Flourney, the founder of the Georgia School for the Deaf, apparently a man of considerable means and influence, proposed the establishment of a commonwealth for the deaf in the western part of the country. To say that the deaf of the country rose up in arms against such a proposal would be to put it mildly. The editorials, articles, etc. by the deaf that

appeared condemning such an idea left no doubt as to where the deaf stood in their allegiance. Good citizens then, as now. Of that there can be no doubt.

Summary

1. Severe early deafness imposes a tremendous barrier to the acquisition of language. Hence, many of the early philosophers looked upon the deaf as poor educational risks.

2. The mental capacity of the deaf is found to be within normal limits when performance scales of intelligence are used. On the other hand there are conflicting results when non-verbal paper-and-pencil tests are employed. The general retardation of the deaf in language ability is a possible reason for the discrepancy in test results.

3. Much of the research with reference to the adjustment of the deaf, here indicated that they are not as well adjusted as the average hearing person. On the whole, however, they adjust favorably and make good citizens when given the opportunity. The deaf are remarkably free of race and creed biases.

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Committee
REPORTS

Tuberculosis in Kansas

Part III—The Current Treatment of Pulmonary Tuberculosis

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The development of effective antituberculous drugs has produced changes in every aspect of the treatment of tuberculosis, and these changes are still being constantly revised. Comparison of different methods of handling this chronic disease can often be made only in retrospect, after years in some cases. The status of his contacts must be considered, as well as the status of the patient, in assessing the success of methods of management. Features of pulmonary tuberculosis which set it apart from most other diseases are its infectivity, its chronicity, and a tendency to relapse clinically or bacteriologically without symptoms. These features frequently have widespread social implications.

The first decision to be made in considering a tuberculous suspect is whether treatment is necessary or not. Active tuberculosis demands treatment, but occasionally it takes some time to decide whether activity is present. Serial chest x-rays and bacteriologic study of sputum are the most useful methods of resolving any doubt. Prolonged observation may be required before a decision can be reached. It is dangerous to reach more than a tentative conclusion of inactivity on a single chest x-ray. It is by no means unusual to examine several sputum specimens before finding one positive for tubercle bacilli. A positive sputum certainly indicates activity, as does a changing x-ray, whether deteriorating or improving. When activity is in doubt, the patient may require hospital admission for further study, both to protect others and to allow diagnostic procedures such as gastric lavage to be conducted.

Although several findings can be accepted as definite indications that treatment is necessary, there

The Kansas Medical Society's Committee on Control of Tuberculosis this past year has prepared a series of four articles intended to orient the physician with the current status of the diagnosis, treatment, and follow-up of patients with tuberculosis. Dr. Martin FitzPatrick served as editor of these four articles which are now appearing in serial form in the *Journal*, following which they will be bound and made available in booklet form to each member of the Society.

Drs. Brooker, Fulton, Loudon, and Taylor's article is the third in a series of four by the Committee on Control of Tuberculosis. The final article will appear in the next issue of the JOURNAL.

is no one finding which rules out the necessity for treatment. The NTA standards for classifications of activity are useful mainly as an assessment of the progress of a patient toward a smaller risk of relapse. "Inactive" does not mean that every tubercle bacillus which the patient harbored has died. More often it describes a rather uneasy symbiosis characteristic of chronic pulmonary tuberculosis.

The methods of treatment of tuberculosis available at present include drugs, rest, surgical excision, and collapse therapy. Treatment can be carried out in a hospital, at home, or with the patient at work; most frequently drugs are given in all three situations in succession. Considerable pressure may be put on the physician by patients, relatives, and economic or social circumstances to reduce the period spent in a hospital or resting at home, or even to omit these phases altogether. The physician's ability to resist these pressures and overcome refusals will increase his success in treatment, and perhaps even eventually his popularity.

Every patient with positive bacteriology should be admitted to a hospital, and the more often exceptions are made to this rule, the longer will tuberculosis be a problem. It should be obvious that the sputum positive patient who has never had a sputum test is at least as dangerous as the patient who knows that he is positive.

Every newly diagnosed case of pulmonary tuberculosis requiring treatment, benefits from an initial period in a hospital. A more accurate evaluation of his disease can be made, clinically, bacteriologically, and radiologically. He can gain more knowledge and understanding of his own disease and may be encouraged and sometimes warned by observing other patients. He has the advantage that a closer watch can be kept on his response to drugs. And he cannot infect his family and friends.

Drugs are now the most important items in the treatment of tuberculosis. They have made treatment more successful, but more complicated, more dependent on technical procedures. The three best drugs at the present time are Streptomycin, PAS, and Isoniazid. The most important fact about drugs is that tubercle bacilli can develop resistance to them, and this resistance is, for all practical purposes, permanent. The development of resistant organisms is a disaster to a patient, and sets back the treatment of his disease to the era preceding chemotherapy.

Several of the factors related to the development of drug resistance have been discovered.

(1) The average patient's organisms will become resistant to one drug, given alone, within a few months.

(2) The more tubercle bacilli his body contains, the more probably and the more rapidly will drug-resistant organisms emerge.

(3) If two or more drugs to which the patient's organisms are sensitive are given in adequate dosage in combination, the development of resistance is made much less likely.

(4) If a patient's organisms are resistant to a drug, that drug may cause toxic effects but cannot help the patient, except occasionally in the case of isoniazid, and will not delay the emergence of organisms resistant to a companion drug.

The disaster of bacterial resistance may arise in several ways. The patient may have been infected originally with resistant organisms. The prevalence of primary resistance of this type is likely to increase in the future. A patient whose organisms are primarily resistant to one drug may be made resistant to others by being given a combination of drugs which would be satisfactory in a patient with drug-sensitive organisms. Resistance has frequently been induced by the use of a drug regime now known to be unsatisfactory, more frequently one of the regimes using streptomycin two or three times weekly, with daily PAS or isoniazid. Resistance may be suspected from the history of previous treatment, from failure to respond to treatment, or from bacteriological culture sensitivity studies.

The advantages and disadvantages of the various combinations of antituberculous drugs have been the subject of much study in large cooperative trials. To avoid the development of drug-resistant organisms, a combination of at least two drugs to which the patient's organisms are sensitive must be given in adequate dosage. "Adequate dosage" for streptomycin means one gm. intramuscularly daily, and for PAS means a minimum of nine gms. daily by mouth. The minimum adequate dosage of isoniazid is less well established and appears to vary from person to person and to depend on which companion drug is used. The blood level of biologically active isoniazid obtained after a loading dose, and the rate of inactivation of isoniazid in the body, vary widely from patient to patient, but are constant for one patient unless altered by the concurrent administration of other drugs, especially PAS. Doses of isoniazid recommended vary from 200 mgm. per day to 12 or even 18 mgm. per kilogram per day, the higher dosages being used with safety only when the blood level of isoniazid attained by the patient has been measured and when pyridoxine is given to reduce the chance of toxic effects of isoniazid developing. Probably the most commonly used routine dose of isoniazid is 300 mg. daily.

Satisfactory drug regimes for a patient with organisms sensitive to isoniazid, PAS, and streptomycin are isoniazid and PAS, daily streptomycin and isoniazid, daily streptomycin and PAS, and the combina-

tion of all three drugs. If a patient's organisms are resistant to one of the three major drugs, good results will be obtained from treatment with the other two. The combination of three drugs has not been shown to have any great advantage over a two-drug combination in a patient with fully sensitive organisms, but it is probably good practice to use all three drugs in combination until sensitivity results on the patient's organisms are available. These studies take a minimum of three weeks from the time of submission of specimens to the laboratory. It is probably also wise to start treatment with all three drugs in the seriously ill patient with a heavily positive sputum, and to continue all three until the number of organisms present has been greatly reduced.

When a patient's organisms are resistant to two or to all three of the major drugs, his prognosis is much poorer and his treatment much more difficult. One or more of the less effective and more toxic "second-string" drugs must be used. This group of drugs includes pyrazinamide, viomycin, and cycloserine, all of which can have serious toxic effects and which should be given only under careful clinical and laboratory supervision.

Streptomycin, PAS, and isoniazid can all produce toxic effects, and those produced by streptomycin are the most serious. Any one of the three can produce an idiosyncratic reaction varying from fever or a mild skin rash to severe hepatic damage, exfoliative dermatitis, or a condition resembling anaphylactic shock. Serious idiosyncratic reactions are rare; usually the milder reactions can be overcome by desensitization. The most serious toxic effects of streptomycin is the development of dizziness; this occurs more commonly in older patients, usually after a few months of treatment. Dihydrostreptomycin causes dizziness less frequently than streptomycin, but causes deafness more frequently. The appearance of either of these symptoms calls for withdrawal of the drug, or the effect may become permanent.

The commonest side effects of PAS are those of gastrointestinal irritation; these are rarely severe enough to require cessation of the drug and will often settle down if treatment is continued. Occasionally a patient will be found to tolerate calcium or potassium PAS or a buffered preparation better than the regular sodium salt, but the enteric-coated preparations frequently appear to pass through the entire alimentary tract intact. Patients may endanger the success of their treatment by omitting PAS or reducing the dose at intervals to avoid GI symptoms. Urine assays for PAS performed on outpatients have shown that up to 30 per cent of those claiming to take PAS regularly do not do so. The importance of such default in allowing resistant organisms to the companion drug to develop must be recognized by both physician and patient.

The most common toxic effect of isoniazid is peripheral neuritis. This is comparatively rare unless high dosage is used without pyridoxine being given simultaneously.

The duration of drug treatment has increased steadily since the introduction of antituberculous drugs. Few tuberculosis physicians would now consider stopping drugs less than a year after the achievement of x-ray stability and a negative sputum, even in a case which was minimal in extent on diagnosis. Treatment is continued longer in cases where the original disease was more extensive, was slower to respond to drugs, or had been present for a longer period of time. Treatment for three or four years is by no means unusual, and in the elderly man with far-advanced, fibrotic, cavitary disease, treatment may need to be continued for the rest of his life. It may be that the latter part of a prolonged course of drug treatment can consist of isoniazid alone, once the disease is well under control and the number of tubercle bacilli left in the patient's body reduced considerably, but this question is still unsettled.

Rest was formerly the most important ingredient in the treatment of tuberculosis, but it has now lost this importance. The patient who is toxic, fevered, weak, breathless, or bleeding will still require more or less restriction of his activities. However the patient whose disease is responding to drug treatment can usually be up and about without prejudicing his recovery.

The dangers of bedrest in the older patient must particularly be kept in mind now that tuberculosis is found most frequently in the elderly. The younger patient whose disease has responded well to drugs, who has achieved x-ray stability and consistently negative bacteriology, and has been discharged from the hospital to continue drugs at home, need probably no longer be restricted to light work for a period of years, provided that he has not lost too much lung tissue. Physical exertion at this stage is less likely to cause relapse than premature cessation of drug treatment. The patient with drug-resistant organisms is in a different category, and bedrest may be the only form of treatment available to him.

The place of surgery in the treatment of pulmonary tuberculosis has also been changing steadily since the development of effective antituberculous chemotherapy. Surgery now finds its main application in the resection of portions of lung which have been damaged by tuberculosis beyond hope of repair and which are considered to present a continuing hazard to the patient. The drugs which have made lung resection safer by reducing the incidence of postoperative complications, such as spread of disease and bronchopleural fistula, have also made surgery less frequently

necessary. Long-term chemotherapy will frequently close cavities which once would have been resected, and the decision to resect a cavitated area of lung is now rarely made before drugs have had their chance for at least six months. The chance of postsurgical complications arising is also increased if surgery is undertaken before six months of adequate drug treatment has been given. When a cavity persists and tubercle bacilli can still be isolated from sputum or gastric washings after six months of adequate drug treatment, surgical resection should always be considered if the patient's general conditions allows and sufficient healthy lung can be left to maintain the patient. Usually the decision will be deferred for a longer period of time where there is hope of further response to drugs. In reaching decisions about whether and when to operate, the patient's total situation must be considered on an individual basis, and he must be allowed to express his own views on the subject.

The patient whose cavity fails to close but whose sputum converts to negative and remains negative is in a more debatable situation, and there is quite a wide variation of opinion on the need for resecting such residual cavities. The age and general condition of the patient, the size and situation of the cavity or cavities, the thickness of the cavity wall, the length of time the cavity has been present and the duration of chemotherapy before sputum conversion occurred, the chance that the patient may not continue to take his drug for a sufficient period of time, the patient's attitude towards surgery, the presence or absence of concurrent disease, and the demands likely to be made on the patient when he returns to the community must all be considered.

Resection of residual lesions left after cavity closure and of localized areas of non-cavitated disease was formerly practiced regularly, but increasing experience and confidence in drug treatment has reduced enthusiasm for surgery in such situations. A localized lesion must sometimes be resected early when the possibility that it is malignant rather than tuberculous cannot be ruled out.

Surgical procedures other than resection of lung tissue which are used in the treatment of respiratory tuberculosis include decortication of lungs or lobes by removal of thickened pleura, resection of emphysema sacs, and thoracoplasty. Removal of diseased or thickened pleura may allow underlying lung to function better in some cases, where it has not been too badly damaged by disease or held captive for too long. Thoracoplasty is now used mainly in order to tailor the thorax after lung resection. Thoracoplasty may be combined with resection at one operation, may precede, or may follow resection. As a definitive form of treatment, thoracoplasty has largely been replaced by resection or drug treatment but may still be used rarely in special circumstances where resection is unduly hazardous.

Collapse, once one of the most important methods of treatment of tuberculosis, has now been virtually abandoned in most centers. Artificial pneumothorax is now very rarely induced in this country as a therapeutic measure. Thoracoplasty and pneumoperitoneum are used to prevent residual air spaces, overdistension of remaining lung, or mediastinal shift after resection, rather than as collapse therapy. Occasionally obsolete methods of treatment may have to be considered when totally drug-resistant organisms are met.

Management of a case of pulmonary tuberculosis may be influenced by the simultaneous presence of various other conditions. Concurrent non-respiratory tuberculosis may require appropriate treatment such as nephrectomy or orthopedic surgery, and will usually benefit from the chemotherapy given for the pulmonary disease. Non-tuberculous chest conditions such as chronic bronchitis and emphysema, may further reduce respiratory function and rule out the possibility of performing resectional surgery in a case otherwise suitable. Silicosis appears to alter the prevalence and course of pulmonary tuberculosis, increasing the prevalence and being associated with a more indolent type of disease, more difficult to recognize radiologically and bacteriologically, and slower to respond to treatment. Pregnancy does not interfere with the response of tuberculosis to drugs, and streptomycin, PAS, or INH do not interfere with pregnancy. Interruption of pregnancy because of tuberculosis is rarely, if ever, justified now. Old age and the various disabilities which attend it have their effects on the management of tuberculosis. The perils of bedrest in the elderly patient must be kept in mind, as must the confusion which may arise when an elderly person is removed from his familiar surroundings.

Aid for Morning Sickness

Ninety per cent of 80 women suffering from morning sickness in pregnancy got relief with prochlorperazine (tradename Compazine), writes Dr. Charles Leavitt Sullivan of Boston in the *New England Journal of Medicine*. The drug combines a tranquillizer and anti-emetic. Dr. Sullivan prescribed it for women whose nausea wasn't remedied first by reassurance, continued rest, adequate bowel control, and frequent eating.

It makes little difference how magnificent are our new buildings or how impressive are our private kingdoms. If no answer is found to war, all men will die poor.—*Norman Cousins*

Maternal Mortality

The patient, a thirty-five-year-old para eight, gravida nine, presented herself for medical care for the first time in the final pregnancy at term. Her physician did a thorough work-up at that time and immediately hospitalized the patient because of severe non-convulsive toxemia. Subjectively the patient had blurred vision, dyspnea on exertion, nocturnal dyspnea, dysuria, and frequency of urination. She gave a vague and incomplete history of her previous pregnancies, but had only four living children. Objective findings included blood pressure of 240/160, three-plus edema of the ankles, grade four hypertensive retinopathy, expiratory wheezes in the lung bases. Laboratory data included normal blood count, serum sodium of 139, CO_2 combining power 17.3, chlorides, 94, and B.U.N. 18. Glucose tolerance test showed a diabetic curve. It was four-plus albumin urea. Serology was negative. No Rh typing or blood grouping was performed.

The fetal heart was audible at 120 per minute on the day of admission, but was not heard thereafter. Labor ensued spontaneously two days after admission and continued at a desultory rate for some 80 hours, being terminated by a rapid progress in the last hour before delivery. Delivery of a seven pound two-and-one-half ounce macerated fetus was accomplished without analgesia or complication.

Following obstetrical consultation, a bilateral tubal ligation was performed on the patient under general anesthesia 24 hours post partum. Cardiac arrest developed during surgery, and thoracotomy with cardiac massage was performed. The patient remained in a coma, and on the sixth postoperative day, a tracheotomy was performed and a feeding tube was inserted. Death occurred on the tenth postoperative day and was attributed to aspiration pneumonia. There was no autopsy.

Committee Opinion

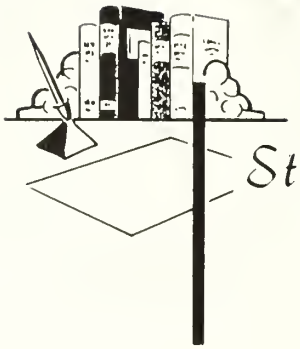
In this case, the handling of the obstetric emergency, and its conclusion to successful delivery by the attending physician are commendable. The committee agreed, also, with the desirability of a sterilization procedure as protection for the patient's future health. It was felt that the more serious, though indirect, cause of the patient's death was her failure to obtain prenatal care. Proper management of her pregnancy might very well have completely altered the outcome. The direct cause of death, that is, the cardiac arrest and subsequent events, must be attributed to the poor choice of time of sterilization and the poor choice of anesthetic. It would have been preferable to wait until later when the patient had improved from her seriously ill condition before attempting the procedure. Furthermore local anesthesia would have provided a much safer anesthetic procedure.

This case serves once more to emphasize the essential value of good prenatal care. This implies, of course, a responsibility on the part of the patient to seek it. Secondly, it emphasizes that a seemingly innocuous surgical procedure such as tubal ligation is still fraught with danger, however remote and infrequent. As an elective procedure, it is warranted only under optimum conditions.

Classification

Maternal death, indirect, obstetrical, preventable.

One of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas.



Student
THESIS

Heart Disease

The Rheumatic Heart in Pregnancy

CLARENCE F. STEINBACH, M.D., ***Blytheville, Arkansas***

As enlightened medical care and public education have diminished the hazards of childbearing, more attention has been directed toward chronic diseases in the pregnant patient. One of these is rheumatic heart disease. It is the purpose of this paper to present basic concepts of heart physiology in pregnancy, both in the normal individual and in the one with rheumatic heart disease, and then to present current views regarding the management of the rheumatic heart disease patient during pregnancy and delivery.

Incidence

Heart disease, as a cause of maternal mortality, is outranked only by hemorrhage, toxemia, and infection.[14] Gorenberg[13] reports that in a number of American obstetrical hospitals it is the most frequent cause of death. Various observers place the incidence of organic heart disease among pregnant women at about one to two per cent, with a mortality rate among these of two to five per cent. Rheumatic heart disease accounts for at least 90 per cent of the organic heart disease in pregnancy.[14] Bruce reports that of the remainder, six per cent is congenital, two per cent hypertensive, and two per cent miscellaneous. He also states that mitral stenosis accounts for 70 per cent of the valvular lesions in rheumatic heart disease.

Normal Physiological Changes in Pregnancy

Before one makes the diagnosis of heart disease in pregnancy, it is imperative that he knows and understands the normal cardiovascular alterations in pregnancy. Numerous observers have reported these alterations.

The physiological burden placed on the heart is well documented by Hamilton and Thomson. Cohen and Thomson first reported in 1936 that in normal pregnancy the cardiac output rises during the period between the 12th and the 36th week, then falls back toward normal. They report this increase in cardiac output as 50 to 65 per cent over the normal.

The greatest rise in cardiac output usually occurs between the 25th and the 32nd week, with a gradual fall in the last month and a return to normal in the early postpartum period. Total blood volume is also increased. This can be correlated with increased retention of sodium and water, probably because of altered endocrine function.[8]

This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Steinbach has completed his internship and is an Air Force Medical Officer at Blytheville Air Force Base, Blytheville, Arkansas.

Burwell[2] in 1938 found that the increase in cardiac output during pregnancy is greater than can be accounted for by the increased oxygen consumption. He postulated that the placenta acts like an arterio-venous fistula with a decreased arterio-venous oxygen saturation difference.

Thomson and Cohen[6] found vital capacity did not decrease, as was once thought to occur, but actually increased from 12 to 25 per cent during pregnancy. This is effected through increased chest circumference and increased A-P and transverse diameters.

In the light of these normal physiological changes, it is conceivable that signs and symptoms resembling cardiac disease could occur in the normal person. Let us now consider some of these signs and symptoms.

DYSPNEA: It was once thought that the dyspnea of pregnancy was due to the mechanical effect of the enlarging uterus. However, it is now known that dyspnea depends largely upon the ratio of the vital capacity to the pulmonary ventilation. Oram quotes Anthony and Hansen as reporting a 57 per cent increase in pulmonary ventilation during pregnancy. This large amount is in contrast to a much smaller increase in vital capacity, and therefore dyspnea may result.

Many normal pregnant women may experience dyspnea on exertion, especially around the sixth month, and may even have mild orthopnea. Since these could be symptoms of impending left heart failure or pulmonary edema, it is important to differentiate the pathological from the physiological.

The usual dyspnea of pregnancy does not interfere with housework. Very appreciable dyspnea before the sixth month should arouse suspicion of a cardiac lesion, as should increased dyspnea in a multipara over that of former pregnancies, especially if pulmonary causes can be ruled out.

The mechanism of the production of dyspnea in mitral stenosis is adequately discussed in most textbooks and need not be considered here. Soloff says that in some patients with mitral stenosis, dyspnea may be due solely to the mitral obstruction, in others solely to myocardial dysfunction; usually it is a combination of both.

EDEMA: Swelling of the ankles is quite common in the latter months of normal pregnancy. One mechanism may be obstruction of venous return from the legs by the enlarged uterus.[2] Hot weather, varicosities, and anemia may also contribute to this condition.[24] The major significance of edema during pregnancy is its appearance in conjunction with other cardiac signs and symptoms.

NECK VEIN DISTENSION: Although this may be seen in patients in cardiac failure, it is also quite common in normal pregnant patients.

TACHYCARDIA: In light of the increased cardiac output during pregnancy, tachycardia of 90-100 is not unusual.

Diagnosis of Rheumatic Heart Disease in Pregnancy

Having considered signs and symptoms which may mimic heart disease, let us analyze those definitely indicative of heart disease.

In the first place, a definite history of rheumatic fever should immediately alert the physician. Consideration of the criteria for diagnosis as outlined by Jones[19] is helpful. Among the major criteria are a history of carditis, migratory polyarthritis, chorea, subcutaneous nodules, and erythema marginatum. Minor criteria include fever, prolonged P-R interval in the EKG, elevated sedimentation rate, and evidence of preceding beta-hemolytic streptococcal infection. A history of the presence of two major, or one major and two minor, criteria indicate a high probability that the patient had rheumatic fever.

As previously mentioned, appreciable dyspnea before the sixth month accompanied by orthopnea should serve to stimulate a search for a cardiac lesion. In the absence of other pulmonary lesions, basal crepitations which persist after coughing or deep respiration should be regarded as signs of pulmonary congestion, and the patient should be fluoroscoped for detection of possible hilar congestion or pulmonary edema.

Hemoptysis is often found in patients with mitral stenosis.[24] Other important signs and symptoms include tachycardia greater than 100 persisting despite rest, auricular fibrillation, cyanosis, and hepatic engorgement with tenderness.

Cardiac auscultation is of course, very important in establishing the diagnosis of rheumatic heart disease. Even here normal cardiac changes may induce a false diagnosis of heart disease. Many pregnant women develop heart murmurs.[8,16,24] Gammelstoft described a systolic murmur best heard over the second and third left intercostal spaces, changing with position, which has been regarded as so characteristic of pregnancy that it has been called the "gestatory" murmur. Oram quotes Landt and Benjamin as postulating that this murmur is caused by kinking of the pulmonary artery.

Comparison of Physical Signs

To aid diagnosis of mitral lesions and to help prevent the false diagnosis of heart disease, Oram has presented a comparison of the physical signs of the normal heart in pregnancy with those of mitral valve disease.

Utmost care must be used in arriving at the diagnosis of rheumatic heart disease. This should entail the use of cardiac consultants by the obstetrician, with close cooperation thereafter if the diagnosis of heart

SIMILARITIES

	Normal Heart in Pregnancy	*Mitral Valve Disease*
Apex beat	Sudden; displaced to left	Sudden; displaced to left
First sound	Loud	Loud in M.S.
Third sound	Commonly present	Commonly present in M.I.
P2	Loud; often split	Loud; often split
Apical murmur	Pansystolic	Pansystolic
Extrasystoles	Frequent	Frequent
Neck vein distension	Commonly present	Commonly present
Ankle edema	Common	Present in failure

DIFFERENCES

	Normal Heart in Pregnancy	*Mitral Valve Disease*
Apex beat	Never left ventricular	Left ventricular in M.I.
Presystolic murmur	Absent	Mitral stenosis only
Apical syst. murmur	Thrill absent	Thrill may be present
Mid-diastolic murmur	Absent	Loud and long in M.S.
Opening snap mitral valve	Absent	Often present in M.S.
Basal crepitations	Never persistent	Persistent if in failure
Auricular fibrillation	Absent	May be present

disease is established. Once the diagnosis is made, a course of management must be outlined.

Prenatal Management

The American Heart Association's classification of cardiac patients provides a useful starting point.[22]

CLASS I: Patients with no limitation of normal physical activity.

CLASS II: Patients with slight limitation of physical activity.

CLASS III: Patients with marked limitation of activity.

CLASS IV: Patients with symptoms while at rest.

The incidence of cardiac failure in pregnancy according to classes has been reported as follows:[12] CLASS I—three per cent; CLASS II—eight per cent; CLASS III—73 per cent; CLASS IV—100 per cent. The mortality rate rises from less than one per cent in CLASS I to about two to five per cent in CLASS II and over ten per cent in CLASSES III and IV.[7]

Hamilton and Thomson also proposed classification of patients into favorable and unfavorable groups. Unfavorable signs and symptoms include signs or history of failure, dangerous arrhythmias such as auricular fibrillation, and complicating serious disease. In 750 pregnant cardiacs they found a 3.5 per cent mortality in the favorable group and a 16.7 per cent mortality in the unfavorable group. Rosenbaum reports that the presence of auricular fibrillation increases the death rate four times.

Approved prenatal care of the non-cardiac patient includes monthly visits during the first six months, bimonthly visits during months seven and eight, and weekly visits during the last month. Most investigators agree that frequent and regular prenatal visits are most important. Dack reports that serious complications are most often seen in those women coming to prenatal clinics late in pregnancy and in those without adequate followup. Unless the severity of the cardiac lesion warrants more frequent visits, the above schedule may be safely observed. During the prenatal visits special attention should be directed toward early detection of increasing dyspnea, orthopnea, edema, hemoptysis, and infection. Auscultation of the chest should be carefully done at each visit to detect early pulmonary congestion.

Frequent determination of vital capacity is advised by some authors.[13, 25] In the pregnant cardiac patient a decrease of 15 per cent or more in vital capacity or a continued decrease from month to month is a sign of impending failure.[6]

General measures[8] advocated include the following:

1. Ten hours of sleep at night and two hours of rest during the day. Oram advocates bed rest in the hospital for two weeks before the predicted delivery date.
2. Avoidance of strenuous activity.
3. Avoidance of emotional stress.
4. Adequate diet.
5. Sodium restriction.
6. Treatment of anemia.
7. Good dental care.
8. Prompt and thorough treatment of infections.
9. Hospitalization at the first sign of pulmonary edema or cardiac failure with the use of digitalis, diuretics, and other general measures.

Dack and Guttmacher both advocate the use of prophylactic antibiotics during pregnancy. Dack advocates the use of 1.2 million units of Bicillin® monthly.

Gorenberg[13] presents the following rules regarding prenatal management of the cardiac patient:

I. Extra bedrest.

II. The pregnant cardiac over age twenty-five should be observed at weekly intervals.

III. All pregnant patients in CLASS III or IV are hospitalized at the time of the first clinic visit and are kept at absolute bedrest for the remainder of the pregnancy.

IV. All patients with a history of previous failure are kept at bedrest for the entire pregnancy.

V. Hospitalize at the first sign of cardiac failure.

Age, obstetrical history, economic status, social surroundings, and personal temperament, as well as the severity of the disease, must receive careful consideration in determining prenatal management.

Cardiac Complications During Pregnancy

A. Pulmonary Edema: Morgan Jones found that acute pulmonary edema was the most important cause of death in pregnant cardiacs. Dack agrees and states that death from intractable pulmonary edema is most likely to occur between the 25th and the 32nd week of gestation. It is extremely important to see patients regularly in order to detect signs and symptoms of impending pulmonary edema such as increasing dyspnea, orthopnea, basilar rales, cough, and pink sputum. Acute pulmonary edema should be treated vigorously with positioning, maintenance of a clear airway, oxygen by mask or catheter, morphine, rotating tourniquets or venesection, intravenous aminophylline, rapid digitalization, and fluid and sodium restriction.

B. Cardiac Failure: Cardiac failure is probably a factor in about 75 per cent of deaths of patients with heart disease.[24] Oppel, in investigating 620 cases of organic heart disease, found the incidence of congestive failure as four per cent with a mortality among these of 15 per cent. He found that the development of failure depended not only upon the severity of the cardiac damage but also upon extracardiac factors. These include upper respiratory tract infection, amount of exertion, cough, anemia, obesity, arrhythmia, and emotional upsets. Of these, upper respiratory infection is a frequent precipitating factor.

He further observed the development of failure during each of the last eight months of gestation, as well as during the first 24 hours after delivery. He states that the most frequent and important sign of failure during pregnancy is congestion of the lungs. Failure occurs more frequently in the older patients. Oppel found that failure almost always responded to proper medical management and treatment with bedrest, digitalis, diuretics, and sodium restriction. Any associated infection should be vigorously treated with antibiotics.[8]

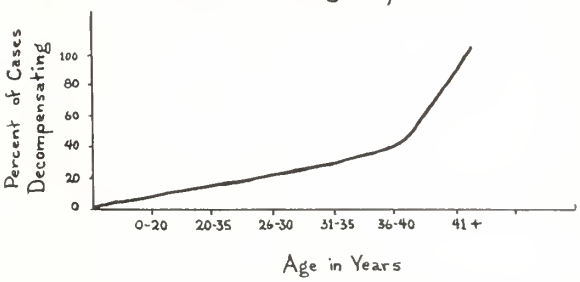
Gorenberg[13] believes that all pregnant cardiac patients with a history of previous decompensation should be hospitalized when first seen and kept at absolute bedrest for the remainder of the pregnancy. This view may seem a bit extreme, but certainly most investigators agree that patients should be placed on bedrest at the first sign of failure.

Interruption of Pregnancy

Here again classification, as proposed by the New York Heart Association, is valuable. With rare exceptions, patients in CLASS I and II may be allowed to go through pregnancy. The situation in CLASS III and IV patients merits more consideration. Despite the fact that pregnancy in these patients is a definite threat to life, many women will risk much for a baby. Eastman states that about one-third of CLASS III pregnant patients will go into failure before delivery. This raises the question of therapeutic abortion. Such a question is loaded with medical, moral, social, and emotional implications which must be seriously weighed.

No definite factor or factors can be cited as absolute indications for therapeutic abortion, although two are regarded as being most indicative. These are a history of previous failure, and the age of the patient. There is general agreement that previous failure predisposes toward further failure. Eastman states that with a history of previous decompensation, the likelihood of failure in the present pregnancy is about 65 per cent. Age is also an important factor. It has been shown by some[8] that the pregnant patient with rheumatic heart disease over age 35 is more likely to go into failure. (See accompanying graph.)

The Effect of Increasing Age on the Frequency of Heart Failure in Pregnancy[10]



In theory therapeutic abortion is sometimes recommended in the previously mentioned situations; however, in actual practice there seems to be general agreement that with proper medical care most pregnancies may be continued. As Drury states, "Good antenatal care serves the mother better than either therapeutic abortion or sterilization."

If one should still decide to terminate the pregnancy, it should preferably be done before the 20th week.[25] After this time it carries as great a risk as delivery itself.[14]

Management of Labor

In general cesarean section is contraindicated except for obstetrical indications.[13, 24] Gorenberg[13] reports that in 345 pregnant cardiac patients the mortality rate with vaginal delivery was two per cent, while with section it was 14 per cent. Other investigators[16, 24] report section mortality as twice that for vaginal delivery. Oram states that probably the most important indication for section is progressive deterioration of the cardiac condition despite good treatment.

One to two weeks of bedrest in the hospital before the expected date of delivery is always a beneficial preparation for labor. In less favorable cases it is mandatory. The question of prophylactic digitalization arises. Eastman advocates withholding digitalis during pregnancy and labor until signs of cardiac embarrassment actually develop.

At the beginning of labor the patient should be placed in the semirecumbent position. Pulse and respiration should be checked frequently. If they rise above 115 and 28 respectively, cardiac failure should be suspected, and morphine and digitalis administered.[10]

In the second stage of labor, patients should be checked more frequently for evidence of failure or pulmonary edema. Strong voluntary effort should be avoided.[24] Ether, caudal, or local anesthesia may be used most effectively and safely. Routine episiotomy and the use of low forceps are advocated by some.[10, 24]

Cardiac failure is a hazard in the immediate postpartum period because of the return to the general circulation of blood previously filling the placenta and uterine sinuses.[24] Rosenbaum advocates application of venous tourniquets to all extremities after delivery of the placenta in an attempt to prevent flooding of the general circulation. Fluid consumption for at least the first 24 hours after delivery should probably be curtailed. Prophylactic penicillin for five to seven days postpartum is recommended to prevent subacute bacterial endocarditis. Guttmacher believes postpartum anticoagulant therapy in patients with auricular fibrillation minimizes embolic dangers. Bedrest for two to three weeks postpartum is also indicated.

Mitral Valvulotomy

In a brief consideration of this relatively new procedure, we find opinion as to its worth divided between the enthusiasts on one hand and the complete skeptics on the other. The majority of throught seems to lie between these two extremes.

If indicated, should this procedure be done before, during, or after pregnancy? Burwell[3] believes that in pregnancy the extent of the mitral lesion is difficult to determine, and feels that valvulotomy should never be done as an elective procedure during pregnancy. He feels that termination of pregnancy is a safer procedure. Marshall and Pantridge, however, feel that in suitably selected cases valvulotomy is preferable to termination. Cranshaw feels that if the decision lies between termination and valvulotomy, the latter should be done because of relatively small risk (less than four per cent mortality) and psychological and religious facets. He states that valvulotomy may be done as an elective procedure during pregnancy.

Other investigators feel that as yet valvulotomy is primarily an emergency measure to be used on patients with repeated attacks of pulmonary edema or those in whom failure is progressing despite intensive medical therapy. Good valvulotomy results have been reported by these authors, but there is definite mortality (one to five per cent) and morbidity even in the most highly selected cases, and the permanency of the benefit is yet to be determined. Soloff feels that in selecting patients for valvulotomy, it is also important to first determine whether the problem is primarily obstructive or myocardial.

As cardiac surgery is made safer and techniques are perfected, undoubtedly valvulotomy will prove increasingly profitable in the management of pregnant cardiac patients.

Prognosis

As previously stated, the mortality rate ranges from less than one per cent in CLASS I to over ten per cent in CLASS III and IV.[7] In general, prognosis depends on the age of the patient, the severity of the valvular lesion, and management.[8, 9] Gorenberg[12] feels that with proper care, nearly every pregnancy in the patient with rheumatic heart disease can be brought to a successful termination and that childbearing does not accelerate the rheumatic process or adversely affect longevity.

Summary

1. Rheumatic heart disease is one of the major sources of maternal mortality.

2. Normal physiological changes in pregnancy must be differentiated from those found in rheumatic heart disease.

3. Pulmonary edema and congestive failure are the most frequent prenatal cardiac complications.

4. Careful prenatal care is of utmost importance in the early detection and treatment of these complications.

5. Therapeutic abortion is rarely indicated.

6. Vaginal delivery is the procedure of choice.

7. Mitral valvulotomy is a valuable adjunct in certain cases not responding to medical treatment.

With proper diagnosis and management then, the fulfillment of motherhood can be more safely allowed to the woman with rheumatic heart disease, and needless deaths can be prevented.

Blytheville Air Force Base
Blytheville, Arkansas

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The Nation's Health

(Continued from page 392)

There is general agreement that a problem does exist. The rising cost of medical care, and particularly of hospital care, over the past decade has been felt by persons of all ages. Older persons have larger than average medical care needs. As a group they use about two and a half times as much general hospital care as the average for persons under age sixty-five, and they have special need for long-term institutional care. Their incomes are generally considerably lower than those of the rest of the population, and in many cases are either fixed or declining in amount. They have less opportunity than employed persons to spread the cost burden through health insurance. A larger portion of the aged than of other persons must turn to public assistance for payment of their medical bills or rely on "free" care from hospitals and physicians. Because both the number and proportion of older persons in the population are increasing, a satisfactory solution to the problem of paying for adequate medical care for the aged will become more, rather than less, important.

In our society the existence of a problem does not necessarily indicate that action by the Federal Government is desirable. The basic question is: Should the Federal Government at this time undertake a new program to help pay the costs of hospital or medical care for the aged, or should it wait and see how effectively private health insurance can be expanded to provide the needed protection for older persons?

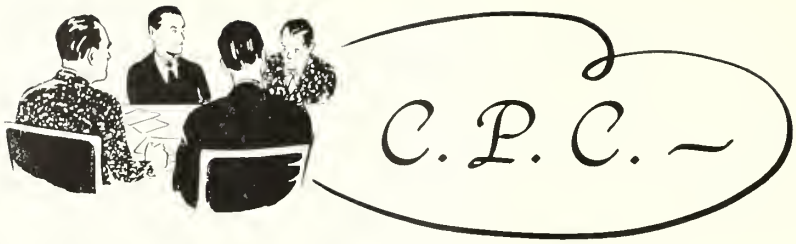
The report itself does not attempt to answer this question, although it sets forth the arguments on both sides. Building on the data contained in the report, we are now trying to develop an answer. It is not an easy task, and I would not venture to predict where we will come out. Of one thing, however, you may be sure: before reaching any final conclusion we will seek opportunities for consultation with representatives of the medical profession and other interested groups. This approach has helped to solve many health problems in the past, and we are confident that it will lead us to a sound solution of this one also.

As the President has eloquently declared:

> A healthy citizenry is the first defense line of the Republic. A healthy citizenry is capable, in peacetime, of expanding our economy; in times of critical tension, of carrying on without cracking or growing hysterical; in times of conflict, of showing the endurance and stamina upon which victories are built.

We are partners in a great cause. The Kansas Medical Society, in its first hundred years, has made a distinguished contribution to that partnership. It will, I am confident, continue to grow in strength in its next century of service.

Assistant Secretary
Department of Health, Education, and Welfare
Washington, D. C.



Progressive Refractory Heart Failure of Obscure Origin in a Young Man

Case Presentation

A twenty-eight-year-old, single, white man was admitted to KUMC on January 1 complaining of shortness of breath. He died on January 24. He had considered himself well until May 30 of the previous year when he first noticed that he tired easily. On July 4 he had an acute onset of pain "over the right kidney" which cleared on increased water intake and without medical attention. He had no other symptoms until July 20 when he became flushed, but his temperature was normal. On July 30 he began to have polydipsia. At that time a blood sugar test and a urinalysis were negative, but the white blood count was elevated. By August 15 he had progressive swelling, stiffness, and pain in his ankles and knees, and by September 3 the pain had spread to his right wrist. After treatment by his physician he showed some improvement.

On September 5 he was hospitalized for further diagnostic studies. On October 22 he had a severe epistaxis. One week later he noted weakness and redness of his left leg with tenderness and pain on walking. He was dismissed on November 23, but was readmitted five days later complaining of pain and pressure in the left anterior chest at the diaphragmatic level and extreme shortness of breath. Salicylate therapy was started, but on December 3 he had another severe nosebleed, and the drug was discontinued. From mid-December until his admission here, he had progressive symptoms of dyspnea, weakness, and swelling of the abdomen. He was admitted to this hospital for further diagnostic studies and therapy.

Edited by Jesse D. Rising, M.D., and Mahlon Delp, M.D., from recordings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology, and pathology of the University of Kansas Medical Center as well as by the third and fourth year classes of students.

From 1949 to 1951 the patient had had frequent sore throats, for which he had had a tonsillectomy in 1951. In 1956 he had had two episodes of "flu" with prolonged recoveries. He had been in a reserve army unit and had undergone several physical examinations for summer camps, but there was no report of any abnormalities. His last physical examination was in August, 1954.

For six months before admission he had nocturia twice nightly. For about one month before admission he had noted mild, generalized pruritus. During 1957 he had lost 20 pounds.

The patient was a well developed, but poorly nourished, white man. He weighed 141 pounds. At the time of admission there was definite cyanosis of the lips, face, and nails. The blood pressure was 105/70; pulse, 100 and regular; respiratory rate, 20 per minute. He had severe dental caries. There was jugular vein distention. The pupils reacted to light and accommodation. There was a high left thoracic scoliosis, and bilateral basilar rales were heard. There was a definite systolic expansion of the left precordium. The PMI was in the fifth intercostal space at the anterior axillary line. There was a grade I to II apical systolic thrill, and a grade III harsh apical systolic murmur was transmitted to the axilla and along the left sternal border. The mitral first sound was increased in intensity, and a third heart sound was present. A grade II diastolic rumble was heard at the mitral region. The second pulmonic sound was accentuated. The liver was palpable 12 cm. below the right costal margin and was massively enlarged, tender, and firm. The spleen was palpable 3 cm. below the left costal margin. There was no pedal edema, and the pulses were normal throughout the extremities. There were no palpable lymph nodes. The neurological examination was not remarkable.

Seven urine specimens gave specific gravities from

1.007 to 1.030 with albumin consistently one-plus and negative sugar. There were many red blood cells and 10 to 20 wax and granular casts per low power field. The red blood count was 4,520,000 with 11.5 gm. hemoglobin; hematocrit, 39 ml.; mean corpuscular volume, 87; mean corpuscular hemoglobin, 25.2; reticulocytes, four per cent; and the platelet count was 253,000. The white count was 14,250 with a normal differential. An LE cell preparation was negative. The VDRL was non-reactive. A fasting blood sugar was 83 mg. per cent; serum albumin, 3.76 gm. per cent; serum globulin, 1.69 gm. per cent. The alkaline phosphatase was 2.3 millimol units, and the total serum bilirubin was 2.7 mg. per cent (direct 1.1 mg. per cent). The cholesterol was 147 mg. per cent with 52 per cent esters. The thymol turbidity was 7 units. The sedimentation rate was 2 mm. per hour. The C-reactive protein was four-plus; ASO titer, 50; mucoprotein, 306; Weltmann, six. There was six per cent uptake of I-131 in 24 hours. In seven tests the blood urea nitrogen level ranged from 19 to 33 mg. per cent; sodium, 134 to 113 mEq; potassium, 4.8 to 6.0 mEq; and chloride, 99.96 to 70 mEq. The serum osmolarity during the last three days of life was from 230 to 246 milliosmols per liter, and the urine osmolarity was from 756 to 735 milliosmols per liter. The venous pressure was 180 mm. of saline, and the arm-to-lung circulation time was 135 seconds.

The patient was acutely and chronically ill on admission, and he never showed any improvement. He was afebrile and maintained a stable blood pressure throughout his hospitalization. He had a persistent tachycardia. His daily fluid intake averaged 2,124 ml., and his daily output averaged 1,380 ml. He was digitalized and maintained on 0.15 mg. of digitoxin daily. He was started on a 1,650 mg. sodium diet, but this was decreased to 500 mg. on his 12th hospital day. Attempts at diureses were made with prednisone, potassium chloride, ammonium chloride, ethyl alcohol, meralluride, aminophyllin, chlorothiazide, and mannitol. His weight steadily increased, and on January 22 he weighed 150 pounds. At that time he was given 62.5 gm. of mannitol intravenously, and he received 60 gm. of mannitol the following day. His weight dropped to 139 pounds. He became dyspneic at rest and required intermittent oxygen. He was apprehensive and was variously treated with meprobamate, barbiturates, promazine, and diphenhydramine. He had frequent episodes of nausea and vomiting, and on two occasions he had a dark brown emesis. He complained of epigastric distress for which he was given antacids. On January 22 a gallop rhythm was noted. He became disoriented and intermittently stuporous. On the evening of January 24 his restlessness increased and his respiration became labored. His pulse rate was recorded at 20 per minute at 8:30 p.m., and he died quietly about 20 minutes later.

Dr. Mahlon Delp (moderator): Are there any questions?

Donald Sleeper (student)*: What therapy did he receive from his local physician?

Dr. Robert Hudson (internist): He was given salicylates.

Irving Umansky (student): Had he previously had a murmur?

Dr. Hudson: It was reported that he had a murmur at the age of 12, but the patient denied it.

Lowell Snyder (student): Did he have petechiae at any time?

Dr. Hudson: No.

Harley Sterling (student): What was his temperature course?

Dr. Hudson: He had one period of elevated temperature after his sixth hospital day.

Miss Donna Lea Steeples (student): Did he have any head injuries?

Dr. Hudson: No, he did not.

Mr. Snyder: What was his fluid intake?

Dr. Hudson: The fluid intake was between 1,500 ml. and 3,000 ml., orally, throughout his hospitalization.

Mrs. Carol Sleeper (student): Were his joint pains migratory?

Dr. Hudson: The ankle and knee pain began almost simultaneously and extended to his wrists, but there is no specific information that the pain began in one joint and then migrated to another.

Mrs. Sleeper: Did he have a skin rash or any subcutaneous nodules associated with this pain?

Dr. Hudson: No, he did not.

Raymond Stone (student): Was his urinary output normal?

Dr. Hudson: His urinary output averaged 1,380 ml. for about 18 hospital days and then dropped to 300 ml. for about four days. He then diuresed with mannitol.

Miss Steeples: What were the fluoroscopic findings?

Dr. Hudson: There were no specific findings other than an enlarged heart.

Mr. Umansky: Did the arthralgia persist throughout his illness?

Dr. Hudson: No.

Mr. Stone: Had he taken any drugs before May 30?

Dr. Hudson: No.

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* Although a student at the time of this conference in May, 1958, he, like the others referred to as students, received the M.D. degree in June, 1958.

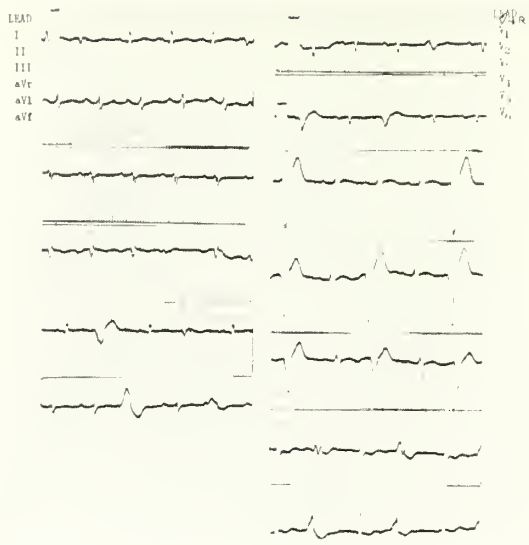


Figure 1. Electrocardiogram taken on January 16, 1958.

Mr. Sterling: Did he have any fever before his hospitalization?

Dr. Hudson: No, he did not.

Mr. Sleeper: What were the blood ammonia determinations?

Dr. Hudson: On his 16th hospital day the blood ammonia was 120; on the 20th day it was 109.

Mr. Umansky: Will you describe the sore on his leg?

Dr. Hudson: It was a deep sore.

Mrs. Sleeper: Did he get any relief of his digestive symptoms from antacids?

Dr. Hudson: He had only slight relief.

Dr. Delp: If there are no other questions, we will now have the electrocardiograms.

Mr. Sterling: The first electrocardiogram on January 2, 1958, shows a rate of approximately 100 with a regular sinus rhythm. P waves are present in all leads. The P-R interval is at the upper limits of normal. There is a normal progression of the R wave across the chest. There are occasional multifocal ventricular premature contractions.

Another tracing taken on January 16 (Figure 1), shows a similar sinus rhythm and a prolonged P-R interval. Numerous VPCs alternate with the normal beat of the heart. There is cupping of the ST segment in leads V_5 and V_6 which I interpret as a digitalis effect. There is notching of the P waves in lead I, as noted in the first tracing.

The last tracing, taken on January 24, shows a sinus rhythm and an increased rate of approximately 120 per minute. The length of the P-R interval is increased, and there is some cupping of the ST segment in lead V_5. There are no VPCs. I interpret this tracing as sinus tachycardia with an axis deviation of approximately 0 to −30 and digitalis effect.

Dr. Delp: Thank you. May we see the x-rays now, please?

Mr. Stone: The P-A film of the chest, taken on January 2 (Figure 2), shows no bony abnormalities. There is definite cardiac enlargement, and the vascular markings are increased. On the lateral film (Figure 3) there is slight deviation of the barium swallow, but no marked abnormality. I interpret these films as showing generalized enlargement of the heart.

Dr. Delp: May we have your comments, Dr. Tice?

Dr. Galen Tice (radiologist): A film taken in December showed the heart to be slightly more enlarged than is shown here, and I believed at that time that there was some decompensation. I was surprised that there was no displacement of the esophagus. This appeared to be a mitral heart from the P-A and lateral views, but it could not be verified from displacement of the esophagus.

Dr. Delp: Thank you. Mr. Umansky will now begin the discussion.

Differential Diagnosis

Mr. Umansky: A twenty-eight-year-old man was admitted to this hospital on January 1, 1958, complain-

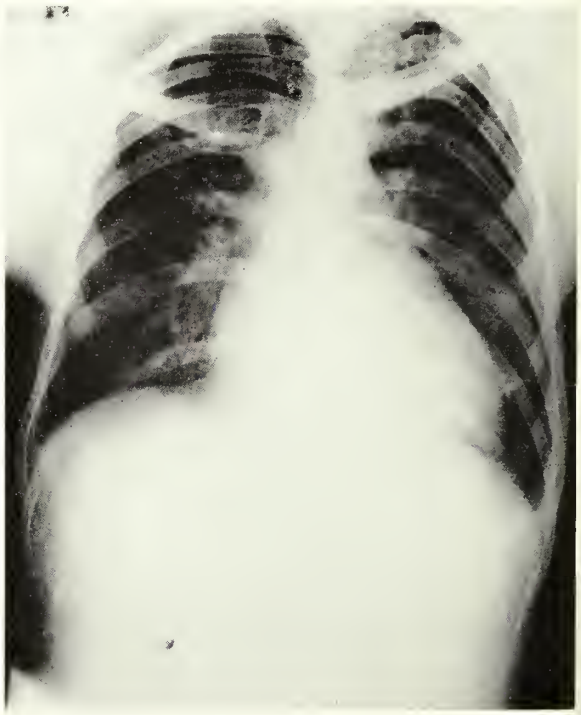


Figure 2. P-A film of chest on January 2, 1958.

ing of shortness of breath, weakness, and abdominal swelling. He died 24 days later. He had a history of frequent sore throats from 1949 to 1951, after which he apparently was well until May, 1957, when he had an acute onset of pain over the right kidney which subsided with increased water intake. On July 30 he had an elevated white count. From August 15 to September 3 he had migratory joint pains, swelling, and stiffness. He was hospitalized, and on October 30 he had redness, pain, and tenderness in his left leg. On December 3 he had developed chest pain and dyspnea associated with progressive weakness and abdominal swelling. Laboratory reports showed a mild albuminuria, microscopic hematuria, and casts. There was a mild anemia and an elevated mean corpuscular volume. A "rheumatogram" showed questionable rheumatic activity. The venous pressure, the circulation time, and the blood urea nitrogen were elevated, but the sodium and chloride values fell progressively during his hospitalization. He had cyanosis, mild tachycardia, jugular distention, basilar rales, cardiomegaly, and an apical systolic murmur. There was an apical diastolic murmur with a loud first mitral sound and an accentuated second pulmonic sound. There was hepatomegaly and splenomegaly. His condition persistently became worse; he became stuporous, and his respiration became labored. He died quietly on January 24.

My differential diagnosis will be based on progressive congestive failure in a twenty-eight-year-old man. Hyperthyroidism is among the several factors that can precipitate heart failure or render it refractory to treatment, but I can rule out this disease because of the low I-131 uptake study and the lack of characteristic signs of thyrotoxicosis. Anemia must be considered here, but the degree of anemia was too slight to believe that this was responsible for his heart failure. Beriberi is an unlikely diagnosis because he did not have a low thiamine diet or peripheral neuritis. I shall rule out A-V fistula because he had no bruit or continuous murmur, and there was no wide pulse pressure. Arrhythmias with tachycardia, such as paroxysmal atrial tachycardia, may contribute to left ventricular failure, but there was no evidence for this disease.

Hypertension can be dismissed as a possible diagnosis because of his stable low blood pressure. I can also rule out hepatic cirrhosis because there were no signs of nutritional deficiency or alcoholism, and the serum protein was relatively adequate.

Constrictive pericarditis may present a clinical picture similar to that of our patient's, but an enlarged heart and prominent cardiac pulsations such as he had are not found in that disease.

Primary amyloidosis usually involves only the heart, but in 25 per cent of these cases, the liver, kidneys, and spleen may also be involved, contributing to classical failure. In the absence of other findings, however, I shall rule it out.

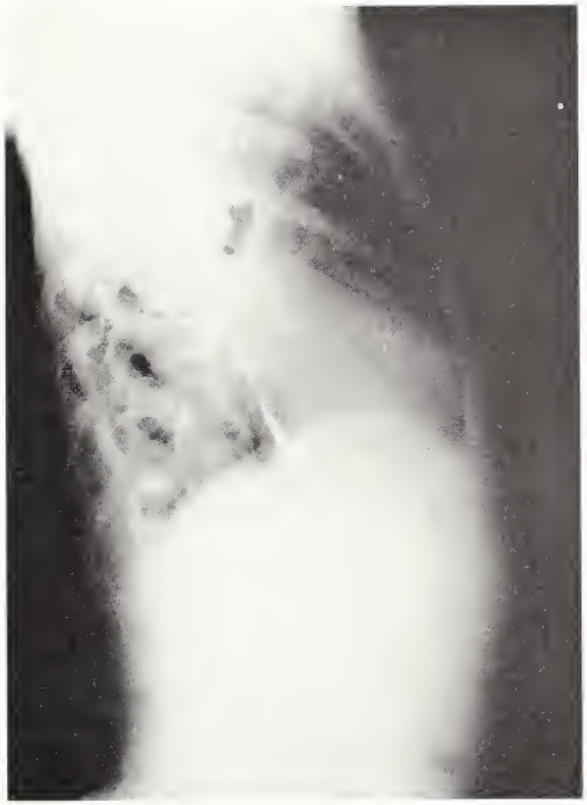


Figure 3. Lateral film of chest.

Disseminated lupus erythematosus often presents many of the symptoms found here such as polyarthralgia, polydermatitis, urinary findings, cardiac involvement, and congestive failure. Our patient, however, did not have the usual albumin-globulin reversal or leukopenia, the LE preparation was negative, and there were no skin lesions.

Periarteritis nodosa could account for many of his signs and symptoms, but there was no hypertension, and diastolic murmurs are rare in that disease. Also, there is usually a reversal of the albumin-globulin ratio and an eosinophilia. Patients with periarteritis nodosa usually die of renal failure with a concomitant hypertension.

The Lutembacher's syndrome occurs in six per cent of the cases of atrial septal defect. The systolic murmur occurs most often at the lower sternal border at the second or third interspace, but can occur occasionally at the apex. This could account for the patient's physical findings and pulmonary arteriolar dyspnea. Congestive failure occurs with cyanosis. This does not explain his polyarthritis, which is usually

diagnosed at an early age. The x-rays do not show a prominent pulmonary outflow tract.

I believe the patient's underlying disease was rheumatic heart disease. He had systolic and diastolic murmurs, both of which were consistent with a mitral stenosis and insufficiency. The loud first mitral sound and increased second pulmonic sound, the shift of the PMI to the left, and the third heart sound were all consistent with rheumatic heart disease.

In general from five to ten years elapse from the first rheumatic attack to the development of the valvular lesion of mitral stenosis. The patient's sore throats which he had from 1949 to 1951 could have been his first attacks. There was no evidence at that time of polyarthralgia or the usual symptoms of rheumatic fever, but about 40 per cent of adults with rheumatic heart disease give no history of a previous attack. He may have had a murmur at the age of 12, and his first attack may date back even earlier. The peak incidence is at seven years of age, and cardiac involvement is most likely when the disease occurs at an early age.

Subacute bacterial endocarditis is one of the complicating factors in rheumatic fever with a damaged valve, and symptoms may be mistaken for the "flu." By May our patient had had two episodes of "flu," and there was the gradual onset of weakness, easy fatigability, hepato-splenomegaly, and the presence of embolic phenomenon. In July he had an onset of pain over the right kidney, and I believe that this was an embolus which gave rise to focal embolic glomerulonephritis and which could explain the finding of many red blood cells in the urine. The migratory arthritis may have been due to subacute bacterial endocarditis, but I believe that he was having another acute onset of rheumatic fever at that time with migratory polyarthritis and pericarditis. The elevated white cell count gives indirect evidence of infection.

Nosebleeds are a common symptom of rheumatic fever. The additional use of salicylates may have given rise to a thrombocytopenia, and there was the possibility of thrombophlebitis while he was hospitalized. He may have had two episodes of pulmonary embolization, but, because he also had a superimposed bacterial endocarditis, the first episode in the left diaphragmatic area may well have been a splenic infarct. This was followed by progressive signs of heart failure, weakness, and edema. His nocturia may have been the result of nocturnal mobilization of edema fluid. The urinary findings were consistent with congestive failure and focal glomerulonephritis. He failed to show any improvement despite treatment with digitalis, a low sodium diet, and diuretics. He developed shortness of breath, hepato-splenomegaly, rales, and tachycardia. Bacterial endocarditis also probably contributed to the congestive failure.

The patient had a low salt syndrome as evidenced by the nausea and vomiting, the diminishing serum sodium and chloride, and the oliguria with low urinary electrolyte. His congestive failure progressed, and he became disoriented and stuporous because of cerebral hypoxia. His labored respiration was evidence of respiratory edema and had not yet contributed to conduction surfaces and insufficient myocardial function which resulted in his death.

I believe that the patient had rheumatic heart disease complicated by bacterial endocarditis.

Clinical Discussion

Dr. Delp: Miss Steeples, what is your diagnosis?

Miss Steeples: Rheumatic heart disease with superimposed subacute bacterial endocarditis.

Dr. Delp: Do you believe he had a mitral stenosis?

Miss Steeples: I believe his predominant lesion was mitral regurgitation.

Dr. Delp: Mr. Sleeper?

Mr. Sleeper: I believe he had rheumatic heart disease with mitral stenosis and regurgitation.

Dr. Delp: Mr. Snyder?

Mr. Snyder: Rheumatic heart disease and mitral insufficiency.

Dr. Delp: Mr. Stone?

Mr. Stone: Rheumatic heart disease, carditis and subacute bacterial endocarditis, mitral stenosis and insufficiency.

Dr. Delp: Why do you use the term "carditis"?

Mr. Stone: Because it occurs in the rheumatic process.

Dr. Delp: Mr. Snyder, would you have expected the patient to show any response to the 60 mg. of steroids which he received daily?

Mr. Snyder: If he had an acute carditis, he should have responded to the treatment.

Dr. Delp: Do you believe the cardiogram is consistent with mitral stenosis?

Mr. Snyder: One would expect more right heart hypertrophy in mitral stenosis. This tracing shows left axis deviation.

Dr. Delp: Would you expect to find notched P waves in the electrocardiogram of this patient, Mr. Sleeper?

Mr. Sleeper: The P waves would be predominant in lead II.

Dr. Delp: Mr. Umansky, how do you explain the fact that three blood cultures were negative after ten days?

Mr. Umansky: It is not unusual for more cultures to be negative than positive in a subacute bacterial endocarditis.

Dr. Delp: The patient had a temperature of 100 degrees on his first hospital night, and on one other occasion his temperature was 99.6 degrees, but he was afebrile throughout the rest of his hospitalization. Is this characteristic of subacute bacterial endocarditis?

Mr. Umansky: The temperature is usually elevated, and the administration of prednisone could also have affected it.

Dr. Delp: How long was he treated with prednisone, Dr. Hudson?

Dr. Hudson: He was started on prednisone on his fifth hospital day and received it for 12 days.

Dr. Delp: Mr. Snyder, why was he treated with mannitol?

Mr. Snyder: Mannitol is sometimes used in the treatment of edema which is refractory to other diuretic agents. The mannitol acts as an osmotic diuretic.

Dr. Delp: Dr. Crockett, may we have your comments, please?

Dr. James E. Crockett (internist): The patient was in low output failure, and the clinical diagnosis was acute rheumatic carditis. We did not believe that he had a subacute bacterial endocarditis, and there was nothing to point to a diagnosis of mitral stenosis. He did have an opening snap, and there was a distinct third heart sound of rapid ventricular filling. There was a loud systolic murmur in the mitral area which was transmitted to the axilla. There was a mid-diastolic rumble which is not infrequently heard in patients with an acute rheumatic carditis, and there was mitral regurgitation with some deformity of the valve. A mid-diastolic sound is produced by the volume of blood passing across the valve in diastole. The electrocardiogram showed left ventricular hypertrophy which would be another substantiating factor. Our diagnosis was an acute rheumatic carditis.

Dr. Delp: How do you explain the enlarged spleen?

Dr. Crockett: The enlarged spleen was probably due to congestive changes. The patient was in heart failure. He had edema everywhere, and I believe the congestion resulted in the splenomegaly.

Dr. Delp: Dr. Schloerb, do you believe that the electrolytes as listed on the protocol are compatible with life?

Dr. Paul R. Schloerb (surgeon): These electrolyte changes are certainly as low as one might expect to see. They are a poor prognostic sign. The normal serum milliosmol concentration is about 290 milliosmols per liter. The urine osmolarities are within the range of normal. The maximum urine osmolarity in the human is from 1,500 to 1,800 milliosmols. If one may assume from this that the basic defect is pure water intoxication, it can be calculated, using reasonable factors, that the patient had about 1,600 extra body milliequivalents of sodium, despite the low serum concentrations. It seems that the logical treatment would be to attempt simple bail-out water in order to raise the serum concentration. It can also be calculated that the amounts of mannitol given were probably insufficient. The amount of mannitol that was given diluted in the extracellular fluid would increase the serum concentration of mannitol about 50 mg. per cent, thus increasing the serum concentration only three milliosmols per liter. The patient had diuresis and weight loss, so it can be assumed that he did get some diuretic effect from the drug. I believe the dose might well have been about four times greater.

Dr. Delp: Thank you. May we have your report now, please, Dr. Caulfield?

Pathological Report

Dr. James B. Caulfield (pathologist): The substance of this case was the fairly rapid progression of heart failure in a relatively young person. The mitral valve (Figure 4) showed a thickened posterior leaflet with fused and thickened chordae tendineae. On the free edge of this valve, yellow, soft, grumose nodules were present. Within these two lesions lay the essence of this case. The thickening of the valve and shortening and thickening of the chordae are typical of healed rheumatic endocarditis. Superimposed on this healed rheumatic endocarditis were the soft, grumose nodules which showed slight calcification with infiltration by neutrophiles and lymphocytes (Figure 5). The major portion of this nodule was composed of fibrin-like material, but organization by fibroblasts was visible. This type of nodule is most characteristically seen in bacterial endocarditis.

Special stains for bacteria were negative. In view of the repeated administration of antibiotics, however, this might be expected. There was no evidence of progression of this bacterial endocarditis, and the disease process may reasonably be assumed to have been arrested.

A section of myocardium (Figure 6) showed three distinct regions. An area of coagulation necrosis (A) was of relatively recent origin. Immediately adjacent to this (B) was dense fibrous tissue with a fair number of capillaries. This area of scarring was of such size that it probably resulted from obliteration of the blood supply rather than an inflammatory focus. Adjacent to this scarred area was an area of relatively normal myocardium (C). The muscles fibers were viable in this region; there was, however, some

Figure 4. The mitral valve region shows shortening and thickening of the chordae tendineae resulting in a mild insufficiency of the valve. Verrucose nodules are indicated by the arrows.

increase in the connective tissue matrix surrounding vessels and between muscle fibers, indicating at least some degree of hypoxia in the past. Myocardial infarction due to emboli arising from valvular nodules in bacterial endocarditis may be fairly common. It has been reported that, in seven cases out of nine, emboli were visible on gross examination, and evidences of infarction were present in eight of the nine cases by microscopic examination.[1]

Areas of recent and old infarction were present in the spleen and kidney. In one of the vessels of the kidney, adjacent to an area of infarction, a small amount of the grumose material identical in appearance to that seen on the mitral valve was present. This material undoubtedly occluded the blood supply to a portion of the kidney, resulting in a recent infarct.

Sections of the lung showed greatly thickened pulmonary arterioles and arteries, a large amount of edema fluid throughout the lung, and macrophages laden with hemosiderin. The liver showed the characteristic findings of acute and chronic passive congestion. A similar picture of congestion was seen in the spleen.

The lung, liver, and splenic changes were compatible with a fairly long-standing heart failure. The evidences of infarct in the spleen and kidney, as well as in the heart, probably were a result of emboli arising from the verrucae on the mitral valve. This appeared to be a case of healed rheumatic endocarditis upon which a bacterial endocarditis had been superimposed for a period of time. The latter condition released emboli that lodged in myocardial vessels and caused infarcts which were the immediate cause of the heart failure.

Dr. Delp: Dr. Allen, if Dr. Caulfield's suggestion of healed bacterial endocarditis is accepted, do you believe that the healing could have been spontaneous?

Dr. Max Allen (internist): I have never seen it, but I am inclined to agree with Dr. Caulfield.

Dr. Delp: Dr. Rankin?

Dr. Thomas J. Rankin (internist): There is about two per cent spontaneous healing of subacute bacte-

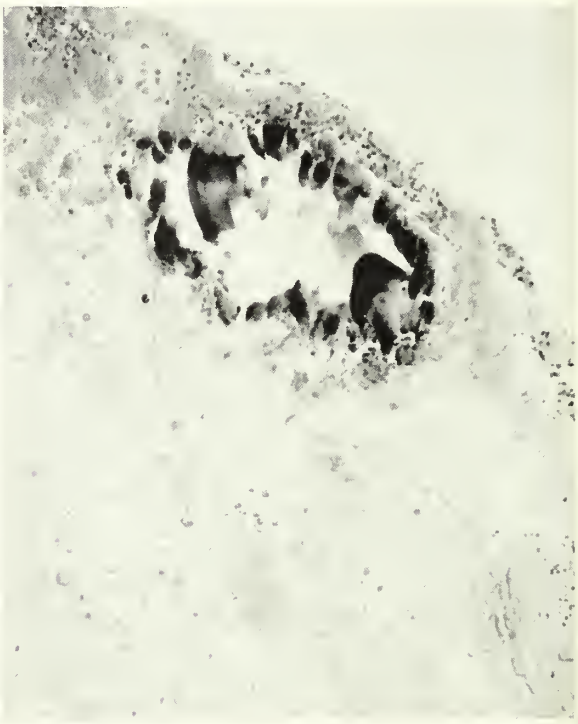


Figure 5. A section of a nodule from the mitral valve showing calcification and inflammatory cell infiltration near the margin. The remainder of the material is fibrin with a few cell remnants.

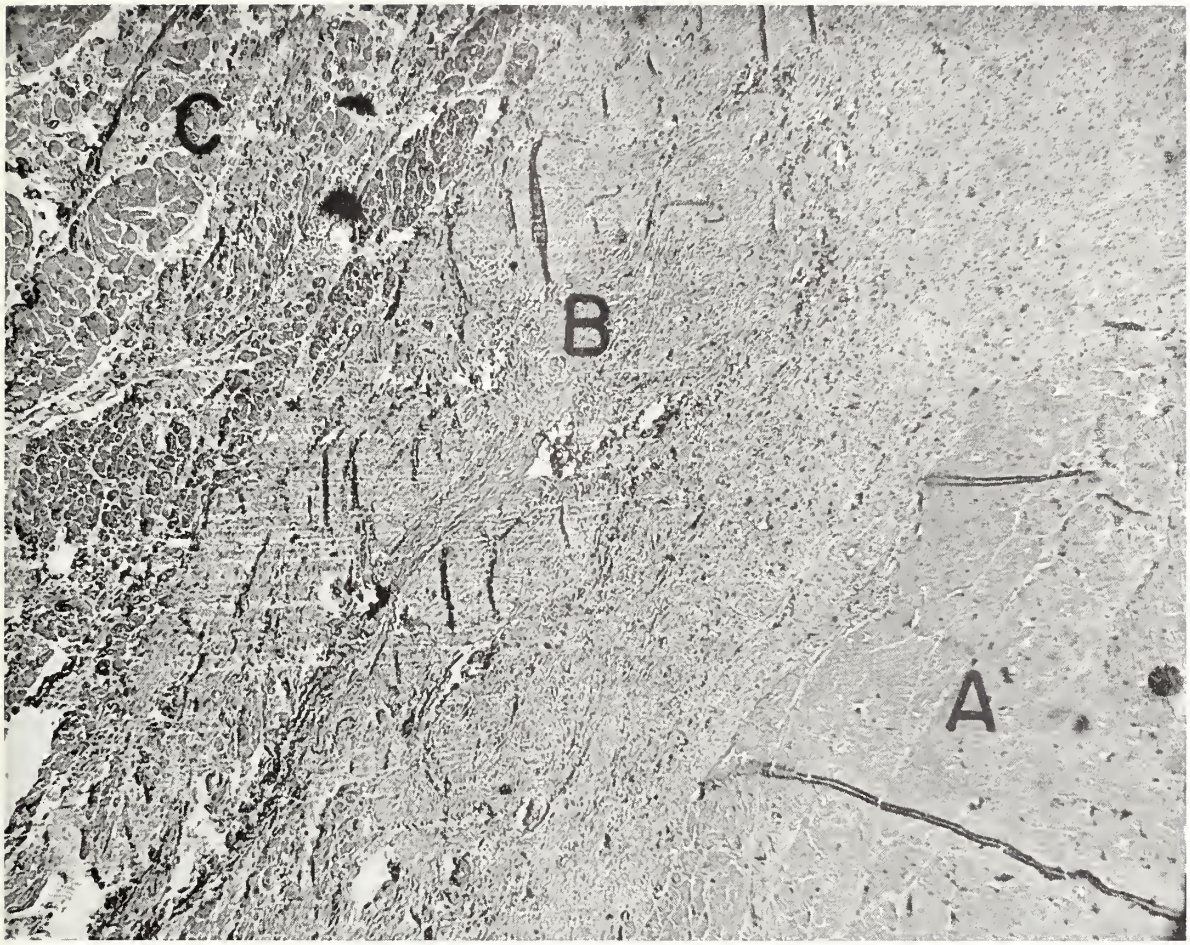


Figure 6. A section of myocardium. At "A" coagulation necrosis with swelling and smudging of the cytoplasm and loss of nuclei is apparent. Area "B" represents scar tissue with prominent capillaries. Area "C" indicates viable myocardium.

rial endocarditis, but I have some doubt of its existence in this case because of the continued illness of the patient since May.

Dr. Robert Weber (internist): I believe he had received antibiotics during the preceding six months.

Dr. Delp: It was reported that he had received sodium salicylate and penicillin for a period of time in September. While he was in this hospital, he received three doses of 1,200,000 units of benzathine penicillin administered on the basis of the probability of his having acute rheumatic fever. There are numerous reports of individuals with subacute bacterial endocarditis who supposedly had a spontaneous recovery. The one suggestion of bacterial endocarditis in our patient's history was the pain in his kidney, and this should have suggested embolism. The enlarged spleen would possibly suggest past bacterial endocarditis, although the explanation of an increased portal pressure and enlargement of the liver would be sound.

Pathological Anatomical Diagnosis

Primary

Healed rheumatic myocarditis and endocarditis, primarily involving the mitral valve.

Healed bacterial endocarditis involving the mitral valve.

Healed infarcts of the spleen and kidneys.

Hypertrophy and dilatation of the heart.

Acute and chronic passive congestion of the lungs, liver, and spleen.

Multiple small, recent pulmonary infarcts.

Coagulative necrosis of the interventricular septum and the posterior and lateral portion of the left ventricular musculature.

Agonal gastric petechial hemorrhages.

Hyperplasia of the islets of Langerhans.

Reference

1. Brunson, J. G., Coronary embolism in bacterial endocarditis, Am. J. Path., 29:689-701, 1953.

The President's Message

DEAR DOCTOR:

Fall is all but upon us. During the hot months of the summer, many of the local medical societies have suspended much of their activities, giving their members well deserved time off for vacations and pursuit of summer fun. Now the time comes to resume their activities in promoting the public health through our societies. We hope you will all attack your problems with renewed vigor.

Your state society has not been inactive. Many committees are forging ahead with their assigned tasks and are making impressive inroads in solving the problems at hand. Let me urge all members to attend these meetings as requested by their chairman. Each of you has much to contribute. The pace of meetings will be accelerated as the winter months approach. Again if you have a particular interest in some committee, let us know your desires so that you may be invited to attend these meetings.

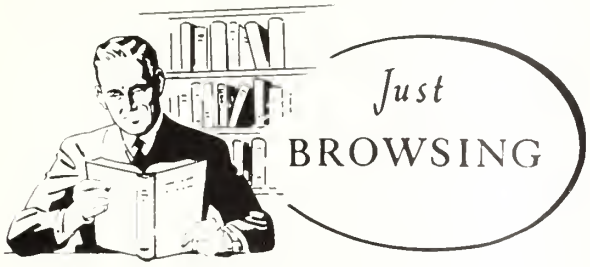
I know that by this time many of you have had the pleasure of meeting the two new members of our staff. James Imboden has been with us since July as executive assistant and has impressed us with his devotion to duty and willingness to serve. Dallas Whaley has taken over the business management of the JOURNAL and will also assist in the executive office. You will find him eager to be of service and sincerely interested in our problems. Oliver Ebel, hard-working and faithful as always, completes a strong executive team for your society.

One innovation is to be tried this year. In order to form a better liaison between the Council and our committees, one member of the executive office team and one member of the executive committee have been assigned to meet with each committee. It is hoped that this will aid communications between the groups and make for better efficiency.

Fraternally yours,

Glenn R Peters M.D.

President

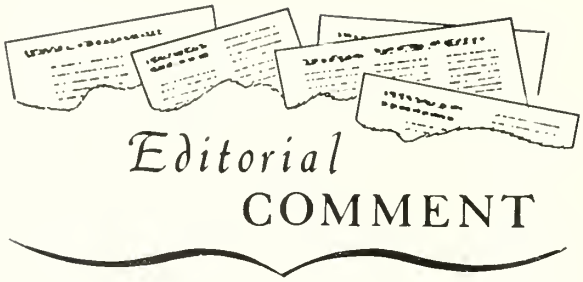


If you think you have had complicated cases lately, read of the problems which John W. Parsons described in a report presented at the 1867 Annual Meeting of the Kansas Medical Society, under the title of "Efficacy of Persulphate of Iron in Arresting Hemorrhage."

"*E. M.* got drunk and slept in the woods on the night of January 31st. The exposure froze both feet up to the tibio-tarsal articulation, and also brought on an attack of double pneumonia. For 30 days he lay in a very critical condition. The feet, in the meantime mortified; the line of demarcation having formed close up to the tibio-tarsal articulation. On the 5th of March, Dr. Larey and myself examined him and found he had recovered from pneumonia, had bed sores, abscesses over his hips, sinuses and abscesses in his legs—particularly the right leg, which to use the graphic expression of his brother, 'felt like a rotten water-melon.' About the middle of his leg was a huge abscess, extending from three inches above the line of demarcation quite up to the knee. From a small opening at the middle and inner side of the leg issued a large quantity of unhealthy pus. He had hectic fever, and his appetite was failing rapidly. The bottom of the line of demarcation was more than half an inch wide, and displayed nothing but necrosed bones. We decided that amputation offered him the only chance for life. We were prepared to operate. Dr. Larey gave the chloroform, and I performed the lateral flap amputation—lower third of each leg. He lost very little blood. The flaps were brought together with sutures, and dressed with dry lint. Three days afterward we dressed the stumps, and while handling the right leg we found the abscess had increased in size, and suddenly arterial blood began to flow rapidly from the opening. We judged from the amount of bleeding that the posterior tibial artery had sloughed. Dr. Larey compressed the femoral artery and *I injected about half an ounce of the liquor ferri persulphatis. The bleeding instantly ceased, and did not return again.*

"The next day quite healthy pus came from the abscess and it soon diminished in size and healed. At this date the stumps are quite healed; he eats and sleeps well; smokes, swears, and chews tobacco as freely as ever; in fact his health is as good as ever—(April 2d). This I consider a remarkable case, and the arrest of hemorrhage by this means is far better than a second amputation above the bleeding point, which would have been perfectly justifiable. Hardly a more unfavorable case could occur, and yet, the result has been very satisfactory."

The doctors didn't have antiseptics or antibiotics, no glucose infusions or transfusions, not even cortisone; yet with patience, persistence, and some good luck the patient got well!—*O.R.C.*



More About Medicare

Several readjustments in the Medicare Program have produced changes which will affect participating physicians. These, in addition to questions frequently asked about this program, will be discussed, and we hope that clarifications will improve the efficiency of operations.

Following a year of curtailed operations while dependents of service men were directed to receive their care at Armed Forces facilities, it now appears that these hospitals are crowded and unable to cope with the increased demands made upon them which will again increase the amount of Medicare work to be done by civilian physicians. It is anticipated this increase will be gradually noticed, and that it will be most pronounced in those cities adjacent to Armed Forces bases. The projected increased activity may also be temporary, but has already been felt in the Claims Department of the Blue Shield offices.

Because the Congress scrutinized this program with some care prior to reducing its budget a year ago, the Washington Medicare office is quite conscious of expenses. They still insist the program is designed to pay usual physicians' charges that might be expected from private patients of the $4,000 income bracket. A fee schedule listing maximum payments is incorporated into the contract signed by the Kansas Medical Society but when made, Society officers were of the opinion the maximum allowable would rarely be touched. It was the intent that each physician should list the amount he would expect to collect from a patient of moderate means in his private practice. This amount would be paid him unless it exceeded the ceiling of the contract. For that reason the Society was requested not to publish the maximum fees.

The philosophy behind this negotiation appeared interesting. It represented a departure from the usual formula of a government contract. It purported to preserve the physician-patient relationship and to provide for a minimum of governmental intervention. The patient would select his own physician, and if eligibility requirements were fulfilled, the physician would perform the service for his usual charges. The government would pay his individual fee.

The Kansas Relative Value Scale was approved by the Washington Medicare Office, and with the exception of some dozen procedures, a maximum point value of $4.50 was accepted. Of the 12 deviations, five exceeded this point evaluation and seven, most of which involved gynecological procedures, were somewhat below that amount. Therefore, except for the above mentioned differences, the more than 1,800 separately listed procedures were rated at $4.50 a point.

In practice the theory did not work out. It soon became apparent that many physicians were charging more than $4.50 a point for Medicare families. It appeared, because of this frequent situation, that the Kansas Medical Society had negotiated a secret contract which it was unwilling to describe to the members. This definitely was not the intent.

In the future it is hoped that physicians filing a claim with Medicare on the claim form under Section V, Item 29, will be required to check either Item A or Item B. These should be rated with care. If Item A is checked, the physician says in effect that he will accept as full payment for the services rendered either his charges or the maximum allowed under the Fee Schedule, whichever is less. Such cases will be processed immediately in the Blue Shield office and payment will be made.

If Item B is checked, the case will automatically be sent to a Kansas Medicare Review Committee. This claim implies that exceptional care was necessary, and the physician must support his more than usual charges with an additional report which will enable the Committee to substantiate his claim. Many of these cases will subsequently be sent to Washington for adjudication.

Charges above the usual maximum allowed can be paid and generally are paid. There is, however, a considerable delay. The delay may be occasioned by any combination of the following factors, but in the future should never again produce the difficulties that have occurred in the past. The Blue Shield office processes the normal claims. The Kansas Medical Society handles only the exceptional cases. The Review Committee contributes its time in this unwelcome task without recompense and performs this work as a service to the Kansas Medical Society. Ex-

perience in the operation of this program will increase its efficiency.

In the beginning, communications between the two processing offices had to be established with relation to this program. The Society has now appointed five Review Committees, but even yet, they will meet only infrequently; where approval through the Washington office is required, a still further delay must be expected.

However, every effort is made to handle this work fairly, and every reasonable claim supported by a statement from a physician will be handled. The Society is grateful to those members who have continued to cooperate with this program often under annoying circumstances. It is hoped the above explanation concerning the Fee Schedule can resolve some of the cases which previously were delayed. Should further questions arise, the Society will welcome additional correspondence and will attempt to provide the answer.

Health Care for the Aged

The Forand Bill is tabled for this session of the Congress. Glenn R. Peters, M.D., president, went to Washington at the request of the American Medical Association and submitted testimony opposing the passage of this bill before the House Ways and Means Committee. On the day he visited the Committee, he heard Walter Reuther present his plea for the passage of this bill.

It now appears certain that exceptional pressure will be brought to bear upon the Congress next January for the passage of legislation which will provide hospital and at least some medical benefits to aged persons paid for from Social Security funds. There is no question but that this will constitute a major crisis in the effort to preserve free enterprise as it was known in the past. There are those who predict passage of such legislation during the 1960 session of Congress. It seems possible even to some who believe free enterprise can still be saved that just talking about it may no longer be enough. Action may be required, and in Kansas a considerable number of ideas are ready for exploration.

Proponents of socialized medicine begin with *the premise* that the aged cannot afford to pay for their health care. This results in neglect or in having the services performed for little or no payment to the physician. There is no assurance that the first premise is based upon fact, nor is this the first time in history that an attempt has been made to get the public to believe a statement merely by its repetition. The medical profession has considerable evidence to the contrary, but in the face of an emotional appeal, logic becomes difficult to sell.

A second premise is that the insurance principle for prorating health care costs is the only sound solution. They argue that adequate insurance is not available for the aged. The medical profession concurs in the support of insurance, and while insurance for the aged is a recently developing field, it is becoming available and will rapidly expand in the very near future.

Premise No. 3 is that only through compulsory participation can the protective base be large enough to solve this problem. The Kansas Medical Society emphatically rejects this premise and believes that insurance can be handled on a voluntary basis that will be attractive and far more economical than any supplied by the Government.

Premise No. 4 is that no one will do anything about this problem, so the Government must. This also is untrue. The Kansas Medical Society is exploring many possible solutions both through Blue Shield and commercial insurance carriers. The Lyon County Plan, familiar to all members of this Society, is an experiment in this direction. Within a few months, Blue Shield will begin a drive for new members in which applicants in any age will be accepted. Blue Cross also is participating in this plan. The hospitals of Kansas are considering the problem seriously enough that they are voluntarily offering to accept less than going charges for the sake of inaugurating the program. Commercial insurance companies have formed a Health Insurance Council and are cooperating toward the preparation of a policy for aged persons which can provide them with necessary benefits at a cost that they can afford to pay.

It is understandable that a crisis should appear on this subject because the impact of an increased aging population has only now become noticeable. Health care, receiving the spotlight at present, is only one facet of this problem involving every social and economic consideration. Therefore all persons are concerned upon all phases of living, and unless enough of the population still believes in the democracy upon which this nation was founded and unless enough of the population retains confidence in free enterprise, whatever the doctor proposes on the question of health care for the aged will be insufficient to stem the tide.

There is much to be done in the health field, but the basic problem is a far greater one than this. Here also the doctor can lead the way, but with him must come all people working together toward solving the problems of housing, recreation, and many other factors. Anything short of that will inevitably produce eventual disaster. Here, however, medicine is afforded a remarkable opportunity for a closer cooperation with all segments of people. Here again the Kansas Medical Society finds itself with a responsibility and an opportunity to fulfill it. It is hoped that each member of the Society will cooperate in programs that are subsequently announced and that through his own initiative will achieve the desired result of providing good life for the aged, doing so in the American way.

The Business Side of Medicine

Watch Your Non-Business Expenses

FLOYD F. WEHRENBERG, ***Kansas City, Missouri***

All doctors are concerned with their profit from their profession, but too many stop at that point. It is important that your professional profit be high, but that alone cannot guarantee that you will have adequate funds set aside for retirement. There are other expenditures that need to be considered and controlled.

The rest of your deductible expenses are usually referred to as "Class B" or non-business expenses. Some of these, such as taxes (personal property, real estate, sales, and excise) cannot be controlled. However, the amount you pay for non-business interest, for contributions and medical expenses is also deductible and will have an effect upon your net gain.

Non-Business Interest

The interest you pay on non-business loans is a "Class B" deduction. You may question that this amount is controllable, but it is in some cases.

For instance you may have a large bank account that you have allowed to accumulate while you are paying five per cent or six per cent interest on money you have borrowed and repaying it according to the original plan. Perhaps you could be using some of that money to repay your loan in advance or on the original terms and thereby realize a savings. Some mortgages may be paid off in a lump sum at a greatly reduced rate of interest after a certain period of time. Others permit double payments in one month thereby enabling you to apply the entire second payment to the principal.

Although interest is a deductible item, it will usually be to your advantage to reduce the amount of interest you are paying. Only if you are in an unusually high income bracket can you make money by paying interest.

There is another risk. You may contract to pay off a mortgage during a period of inflation at an inflated price. When economic conditions level off or recession sets in, you will still be paying the inflated price. How much better if you have paid it with inflated money!

Generally speaking if a doctor retains approximately three months' business expenses in his bank account, that will be sufficient. The rest should be put to work for him.

Contributions

The matter of contributions is also worthy of consideration. The deduction for gifts or contributions by an individual is generally limited to 20 per cent of the taxpayer's adjusted gross income for the year. The 1954 Code, however, increased this to 30 per cent if the extra 10 per cent is paid to a church or association of churches, a tax-exempt educational organization, or an exempt hospital.

If you have a long-range contribution plan, this angle should be given attention. You may purchase property now to be donated at a future date. If that property increases in value, as it may well do in an inflationary period, you are permitted to deduct the current market value of the property at the time the contribution is made, rather than the purchase price.

(Continued on page 424)

Mr. Wehrenberg is Missouri-Kansas manager, Professional Management Midwest, 4010 Washington Street, Kansas City, Missouri.

The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL *reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.*

Phone Business

Those doctors who are reported to be charging $1 for answering telephone calls are moving dangerously near to parody. For already in the public mind doctors are beginning to be thought of as persons who send out the bill first and the prescription later.

The American Medical Association, to its credit, has recognized the evil in the dollar phone call practice, and recommends in the official *AMA News* that fees for home and office calls should be sufficiently high to compensate for occasional services such as telephone calls, medical reports, and the filling out of insurance forms.

In Kansas, fortunately, most doctors still retain high standards of service to the community and to mankind. But in many of the urban centers of the country, doctors are rapidly pricing themselves in the direction of socialized medicine.

It would be tragic if, on the threshold of major medical breakthroughs in diseases that have baffled through all of man's history the price of medical care should rise so high as to deny it to anybody.—*Topeka Daily Capital, August 4, 1959.*

Socialized Medicine Slips in the Window

The American public now spends $6 billion a year for hospitalization. Of this 44 per cent is paid by our various governments. The federal government's care of its military and their dependents accounts for part of it. The welfare programs of state and local government make up the rest.

So this type of medicine already is 44 per cent socialized. But that is only a start. There are millions more who participate in Blue Cross and Blue Shield or protective insurance programs. They all are socialistic in essence even if control is in the hands of private rather than governmental agencies.

The argument against socialized medicine continues to wage hot. It has waged even hotter in recent weeks because of a measure before Congress which would further enlarge federal operations in the hospitalization field.

The statistics indicate that while the door has been successfully barred against socialized medicine, it has been slipping through the side windows with surprising speed. Before the argument ends socialized medicine likely will be an accomplished fact. The only remaining task will be to close small gaps and to provide better coordination of the work of the various public private agencies in the health field.—*Hutchinson News, August 3, 1959.*

Government Role in Medicine Is Growing

One of the most vigorous fights against the government's role in ordering our lives is the battle against socialized medicine.

For better or for worse, the battle is being slowly lost.

Recent testimony before a congressional committee showed that government already is paying 44 per cent of the nation's annual $6 billion hospital bill.

Fourteen per cent is paid by the federal government, mostly for the care of servicemen and veterans. The other 30 per cent is borne by state and local government for welfare cases, those in mental hospitals and related institutions.

With such powerful groups as the American Legion constantly lobbying for more medical service

to veterans, and with the voting power of the aged and infirm on the increase, this trend is not likely to be reversed.

Individual Americans will bear the other 56 per cent of hospital costs—and related physicians' fees—only if private insurance coverage keeps pace with the increases in costs.—*Hutchinson News, July 22, 1959.*

Discouraged Britons

A few months ago *Harper's* magazine published an article on Britain's socialized medicine system. The author had much praise for it, and cited the fact that when he suffered a chipped elbow he was given free care.

This brought a letter from an American doctor, which *Harper's* published in its July issue. This doctor found that statements in the preceding article "sound like the ecstasies of a confirmed freeloader who has discovered a saloon which still offers the old-time free lunch." Then he went on: "There is a widening gap between the quality of medicine as it is practiced in the United States and in Great Britain. According to Dr. Alistair Luton, an English physician now in the United States under a Ford Foundation grant, this is a typical English doctor's day:

"50 patients before lunch

"50 patients after lunch

"20 or 30 house calls daily.

"Should we wonder that the English doctor is discouraged and unable to keep up with the march of medicine?"

Deterioration of standards and services is always a result of socialism—socialized medicine included. It could happen here, just as it has happened in England. And anyone who thinks that the socialized medicine issue is dead so far as the U. S. is concerned had better think again. A current proposal, for instance, would provide government-paid medical and hospital care to people drawing Social Security payments. Once that precedent was established, it would be just a matter of time before other groups demanded and received similar treatment.

As the old Chinese proverb has it, the longest journey begins with a single step.—*Emporia Gazette, August 1, 1959.*

Medical Degree In Less Time?

The nation's expanding population, and especially the increase in the proportion of older people, has raised the specter of a doctor shortage. Columbia's president, Grayson Kirk, has estimated that by 1975 the nation's present and projected medical schools will be able to turn out only two-thirds of the number of doctors needed even to maintain present standards of medical care.

One interesting new approach to the problem, however, is contained in Boston University's announcement of a plan to train doctors in six years instead of eight, by use of a year-round schedule in which undergraduate and graduate work would be integrated into "a program of general education with medicine as a major." It aims at training doctors not only faster but better, giving them a firmer foundation in science and liberal arts, but co-ordinating preparatory courses in such a way as to simplify the teaching of purely medical subjects.

The progress of the plan will be watched with a good deal of interest from both inside and outside the medical profession. If it works out as its sponsors confidently predict, it could lead to a better use of scarce medical teaching facilities. It also would considerably lighten the burden on prospective medical students, many of whom are undoubtedly deterred by the exceptionally long period of preparation the profession now requires.—*Reprinted from New York Herald Tribune in Kansas City Star, August 12, 1959.*

The Business Side of Medicine

(Continued from page 422)

And you would not be required to pay any tax on the gain involved.

Medical Expenses

An accurate record should be kept of medical expenses. The Code now permits deduction of medical expenses in excess of three per cent of adjusted gross instead of five per cent. Amounts paid for drugs and medication are allowable in excess of one per cent. Insurance received must, of course, be deducted before claiming the allowance.

It is important for you to set up a separate account for medical expenses and keep a record of all expenses paid during the year. You can never be certain how much it will be, and if at the end of the year you do not have sufficient expenses to deduct, nothing is lost. However, failure to segregate them as you go along may involve a loss to you if you learn late in the year that you will want to claim them as a deduction.

These expenses are important to your financial program, so give them the attention they deserve.

Washington HIGHLIGHTS

This summary of Washington news is prepared by the A.M.A. Washington Office for distribution to state medical journals.

Forand Bill Tabled Till Next Year

The House Ways and Means Committee has put aside until next year the so-called Forand bill which is opposed vigorously by the medical profession.

But supporters of the legislation have made clear that they will press for action by Congress next year when politics will be paramount because of the presidential and Congressional elections in November.

The Ways and Means Committee took no action on the legislation after five days of hearings highlighted by the Eisenhower Administration lining up with the medical profession in opposition to it.

Arthur S. Flemming, Secretary of Health, Education and Welfare, told the committee that "it would be very unwise" to enact such a bill. He warned of "far-reaching and irrevocable consequences." It would freeze health coverage of the aged "in a vast and uniform government system" and would mark the beginning of the end of voluntary health insurance for old persons, he said.

Secretary Flemming later promised to report to Congress early next year on possible alternatives, including Federal subsidies to private carriers of health insurance for the aged. But he took no position on any of the alternatives for the time being.

Summing up the hearings, Dr. F. J. L. Blasingame, Executive Vice President of the AMA, said:

"It was shown that it would be most unfortunate for the federal government to move in for political reasons and attempt in a compulsory fashion to solve by legislation problems which are being thoughtfully considered at the state and local level by the medical profession and other dedicated members of the health team."

Main support for the bill, which was sponsored by Rep. Aime J. Forand (D., R. I.), comes from organized labor. The legislation would increase federal Social Security taxes to finance hospital, surgical, and nursing home care for Social Security beneficiaries.

Although this bill has been shelved for the time being by the House Committee, the problems of the aged are being studied by a Senate Subcommittee headed by Sen. Pat McNamara (D., Mich.). The Subcommittee on Problems of the Aged and Aging of the Senate Committee on Labor and Public Welfare has held public hearings intermittently in Washington. It also planned to hold hearings in various other cities.

In his second appearance before the Senate Subcommittee, Dr. Frederick C. Swartz, Chairman of the AMA's Committee on Aging, reported that state and local medical associations "have moved promptly" to make the AMA's six-point "positive health program" for the aged "an effective and workable instrument."

Dr. Swartz said that the problem of financing health services for the aged is "a temporary, not a permanent one" because "each year, more and more of the Americans who are reaching sixty-five are covered" by voluntary insurance.

Three Housing Bills Affecting Medicine

Democrats in Congress cut back their housing program further after President Eisenhower vetoed a $1.4 billion bill. Starting with a $2.1 billion program, Democrats came down to the $1.4 billion figure in an effort to avoid a veto although it was a more expensive program than Mr. Eisenhower wanted.

After the President vetoed this bill anyway, Democrats came up with a $1 billion bill which retained three provisions of interest to the medical profession.

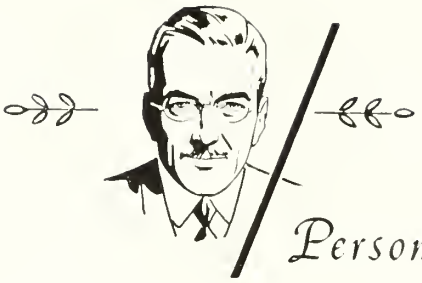
They would:

1) provide construction loan guarantees by the Federal Housing Administration of up to 75 per cent of the cost of proprietary nursing homes; 2) authorize $25 million in direct loans for construction of housing for interns and nurses; and 3) authorize a $50 million revolving fund for direct loans to help private nonprofit corporations build rental housing for the elderly.

$400 Million to Research

Congress voted a compromise $400 million appropriation for medical research. The amount was about $80 million less than approved by the Senate, but was more than $100 million above the Eisenhower Administration's request for the National Institutes of Health.

The allotments for research in specific fields included: cancer, $91 million; mental health, $68 million; heart, $62 million; arthritis, $47 million; neurology, $41 million; allergy, $34 million.



Personalities—IN KANSAS MEDICINE

Dr. Henry J. Dick, located in Burlington in July for general practice of medicine.

Doctor Dick's home was Emporia, Kansas, where he graduated from high school. He received his A.B. degree from the University of Kansas in 1950 and earned his M.D. degree from the University of Kansas Medical School in 1958. He interned at St. Joseph's Hospital in Kansas City in 1958-59.

Doctor Dick spent over a year in the medical corps in Alaska. He is married and has three children.

Dr. W. W. Orrison, Plains, announced last month he was moving to Meade and will be associated with **Dr. R. H. Hill,** in the offices of **Dr. R. M. Dougherty.**

Doctor Dougherty recently suffered a heart attack and is unable to continue general practice. He and Mrs. Dougherty moved to Lawrence this month, and he will be associated there with the Kansas University Student Health Center.

Doctor Orrison came to Plains from Minneola five years ago.

Drs. H. S. O'Donnell, Richard O'Donnell, Alfred Horejsi, and J. E. Seitz have moved their office from downtown Ellsworth to a new combination clinic, medical center, and office building near the hospital.

Dr. Edward Greenwood was a panel member on the discussion of the 1960 White House Conference on "Children and Youth" at the National Education Association's convention in St. Louis last month.

Drs. D. B. Foster and John A. Segerson attended the first international medical conference on Mental Retardation in Portland, Maine, last month.

Dr. Karl Menninger has been asked to act as consultant to the research staff for the American Bar Foundation's Committee on the Rights of the Mentally Ill.

A 16-year member of the Society, **Dr. A. R. Nash,** Parsons, closed his practice in Parsons last month and left for Sykesville, Maryland, to make his home. Dr. Nash has been practicing in Parsons for nearly 50 years.

Doctor Nash, who is eighty-eight, started his practice in Parsons in 1912. For many years he had his office in the 1800 block on Broadway.

His daughters came from Maryland to accompany him to their home.

Dr. Raymond C. Klapp opened an office in Wa-Keeney recently after closing his practice in Wichita.

Dr. Klapp received his Master's Degree at Wichita University and his Doctor of Medicine at Harvard University in 1939. He served in the United States Army during World War II for four and a half years and later was chief of surgery in Japan for two years, a civilian working for the Department of the Army during the Korean War.

Dr. Don George, a native of Edna, Kansas, has entered general and obstetric practice at the Salina Clinic. Doctor George attended the undergraduate school at the University of Kansas where he was a Summerfield scholar and was graduated with honors from the George Washington University School of Medicine, Washington, D. C.

After his graduation, he interned for one year at Walter Reed Army Hospital before he served two years as a general medical officer at Irwin Army Hospital, Fort Riley. Dr. George's father is a former U. S. Congressman from the third Kansas district.

Emporia's newest physician is **Dr. D. C. Coldsmith** who has opened an office in the same building with **Drs. A. L. Lohmeyer and J. M. Catlett.** Doctor Coldsmith will engage in general practice. He was graduated in 1958 from the University of Kansas Medical Center and served his internship at Bethany Hospital, Kansas City, Kansas.

Doctor Coldsmith attended high school at Coffeyville and was graduated from Baker University in 1949. He served four years as a YMCA worker and for one year was director of the boys' work for the YMCA at Topeka, before entering the K. U. Medical School in 1954. While waiting to get into medical school, he served a year as pastor of the Methodist Church in Tonganoxie.

The University of Kansas Medical Center surgeon, **Dr. Stanley R. Friesen,** will leave for a year's study. The professor of surgery and oncology at the University has begun a sabbatical leave of absence, starting last month, for a year of study in England and Europe. He and Mrs. Friesen and their four children left for New York and were scheduled to sail on the Holland-American Line ship *Maasdam.* Their home until July, 1960, will be in London, where Doctor Friesen will headquarter at the University of London. He will have research laboratories at two of that University's Schools, the Medicine-Postgraduate Medical School and St. Thomas' Medical School.

At the Postgraduate Medical School, Doctor Friesen will work with Dr. A. G. E. Pearse, reader in histochemistry, who has been on the visiting faculty of the University of Kansas postgraduate course in histochemistry. He also will work with Professor Ian Aird at the school. He will do basic investigative work of the ganglion cells of the esophagus, pylorus, and intestine. He will carry on his studies by means of histochemistry and physiology.

In September Doctor Friesen will present a paper at the International Society of Surgeons at Munich. He will make professional visits in Vienna, Helsinki, Glasgow, Stockholm and London.

Dr. H. B. Stryker, Concordia, gave a talk on diseases of the heart and their preventions and treatments to the Concordia Kiwanis Club meeting recently.

Dr. Charles T. Stephens recently joined the staff at the Minneola Clinic and is associated with **Dr. D. L. Richards.** Doctor Stephens was an intern at the Wesley Hospital in Wichita during the past year. His education was received at Central College, McPherson, Kansas, and the School of Medicine, Missouri University, Columbia, Missouri, where he received his Doctor's Degree in 1957. Doctor Stephens is a native of Ashburn, Missouri.

Dr. L. Claire Hays, Cedarvale, has been appointed to the Advisory Commission for the Norton Sanatorium by Governor George Docking.

Governor Docking's appointment called attention to the "integrity, patriotism, and ability" of Doctor Hays, and appointed him for a four-year term.

Dr. Craig Clark has recently opened an office in Junction City. Doctor Clark came to Junction City from the staff of the Bethany Hospital in Kansas City.

Doctor Clark attended elementary schools in Wichita and graduated from Wichita East High School. He received a Bachelor of Science degree in Electrical Engineering from Kansas State University in 1952. He had attended Wichita University three years before graduating from Kansas State. He received his Doctor of Medicine Degree from the University of Kansas Medical School in June, 1958.

He is a member of Phi Beta Phi, honorary medical fraternity.

Dr. Harold Mauck of Stockton has been appointed Rooks County coroner. He replaces **Dr. Vale O. Page** of Stockton, who resigned.

Dr. Leo Robinson, Iola physician, was elected president of the Iola Board of Education recently.

Topeka doctor retires. **Dr. and Mrs. C. K. Schaffer** left Topeka last month for their new home in Santa Cruz, California. He has been in Topeka since 1927 and specialized in geriatrics. His office has been closed since the first of August while he prepared for the move.

NEW MEMBERS

John Aunins, M.D.
4853 Hemlock
Wichita, Kansas

Warren E. Meyer, M.D.
205 KFH Building
Wichita 2, Kansas

KMS Obituaries

Clifford C. Nesselrode, M.D.

Dr. Clifford C. Nesselrode, 79, physician and surgeon in Kansas City for more than half a century and past president of the Kansas Medical Society and the American Cancer Society, which he helped to organize, died at St. Margaret's hospital July 18. The 79-year-old doctor announced his retirement three years ago, but continued daily visits to his office.

Doctor Nesselrode was born in Wellington and was a member of the first graduating class from the University of Kansas Medical School in 1906.

In 1948 he was elected president of the American Cancer Society and received the first distinguished service medal awarded by that society. He had previously served as the president of the Kansas Medical Society and head of the American Cancer Society, Kansas Division.

Doctor Nesselrode helped establish the Kansas City, Kansas, Chamber of Commerce. In 1917 he was elected its first president. He was also director of the Commercial National Bank and the Kansas Trust Company.

He was former chief of the surgical staff of the St. Margaret's Hospital.

Doctor Nesselrode did his postgraduate work in surgery at Harvard Medical School and London Hospital, London, England. Being in London at the outbreak of World War I, he was assigned to a task of aiding Americans to secure passage to the United States.

He was commissioned a captain in 1917 and served in the medical corps of the U. S. Army, being discharged with the rank of Colonel. He stayed in the officers' reserve corps from 1919 to 1953. During World War II, he was examiner for Draft Board 5.

Doctor Nesselrode was professor of clinical surgery at the University of Kansas from 1908 to 1947.

He had been Governor for Kansas many years for the American College of Surgeons; charter member of the American Association for Surgery or Trauma; Head of the Kansas City, Kansas, expansion program; director of Red Cross; first president of the Kansas City Surgical Society; and a member of the Founders Group of American Board of Surgery. Surviving, in addition to his wife, are a daughter, two sons, two sisters, and six grandchildren.

Frank A. Eckdall, M.D.

Dr. Frank A. Eckdall, Emporia's senior physician, died Friday, July 30 at Newman Memorial County Hospital after an illness of several months. Doctor Eckdall was born in 1872 at Emporia, where he attended elementary and high schools. He studied pharmacy while working at Emporia drug stores, and in 1894 passed the state pharmacy examination. After eight years as a druggist, he entered the Louisville, Kentucky, Medical School, where he took two years' work, then transferred to Rush Medical School, Chicago, Illinois, where he received his M.D. degree in 1901. That same year, he returned to Emporia and began practicing medicine with Dr. L. D. Jacobs. He was the Emporia physician for the Santa Fe from 1904 until 1945; had been chief of staff at St. Mary's Hospital and of Newman Hospital; president of the Lyon County Medical Society; president of Santa Fe Medical and Surgical Societies; vice-president of the American Association of Railway Surgeons of America. He was a member of the First Presbyterian Church; Blue Lodge No. 12, Scottish Rite; and Knights Templar.

He was married in 1904 and fathered three children, Lida, now Mrs. Raymond Lee, Kansas City, Frank F. Eckdall, an Emporia attorney, and Dr. Funston J. Eckdall, who had a partnership with his father in 1937.

Dr. Eckdall had been a member of the Kansas Medical Society since 1933.

Blue Shield

Results of a statewide utilization study conducted by the Joint Study Committee on Hospital and Medical Economics completed early this spring showed sufficient evidence of faulty use of Blue Cross benefits to justify a continuing effort to reduce this excessive utilization. The study indicated that about six per cent of the Blue Cross case cost was in the questionable use category.

Members of the committee, representing the Kansas Hospital Association, the Kansas Medical Society, Kansas Blue Cross and Kansas Blue Shield, have expressed the feeling that any future program for reducing over-utilization should be in the form of an educational approach, rather than as an attempt to establish controls over individual cases.

On the other hand, the amount of excess use discovered during this study was not as great as had been anticipated, and members of the committee, as well as the Kansas Medical Society House of Delegates, want to find a method by which any faulty use may be brought under control without causing concern on the part of hospitals, physicians, and the public that this problem is being over-emphasized.

A Voluntary Committee

In the spring of 1958, a Joint Study Committee on Hospital and Medical Economics was set up to explore hospital and medical costs and utilization. The Medical Society, Hospital Association, and Blue Cross and Blue Shield had equal representation, with H. M. Glover, M.D., Newton, chairman. He said at that time:

"In view of the concern about rising cost of hospital-medical care throughout the country, occasional difficulty in getting a patient admitted to the hospital, and the possible overuse of prepayment programs, these three statewide organizations have voluntarily set up this study committee."

Within three months over 300 physicians and 145 hospitals throughout Kansas were participating in a statewide study of hospital usage which was the first action of the Study Committee. A careful examination was made of sample cases in every hospital in Kansas. Physicians checked the hospital records, finding the reason for admission, the length of stay, and the services used.

As the study progressed, it was agreed that there was enough questionable use to justify the development of a specific program to help eliminate excess use and particularly to serve as a reminder to physicians and hospitals that an effort must be made to prevent abuse of prepayment benefits.

The committee emphasized in its plans for a future program that as a general principle, the careful use program should not attempt to set up controls on an individual case basis because of the implications of interference with medical practice. The nature of the program should be primarily educational with reports being made of use trends in each hospital.

Local Review Committees

As a part of the future program to study and cut down overuse, hospital utilization study committees will be established on each hospital medical staff. These committees would serve two purposes:

1. Back up an individual physician who might have difficulty in persuading a patient that further hospital care was unnecessary, and

2. Report to the full medical staff on use trends both locally and statewide and discuss general ways in which abuse might be eliminated. (Efforts of this

kind will serve to keep the subject of careful use before the doctors.)

Set Up "Careful Use" Program

The procedure adopted by the Study Committee can be outlined as follows:

- The first step should be a letter from the President of the Kansas Medical Society to all physicians in the Society and the President of Kansas Hospital Association to member hospital administrators outlining the need for the "careful use program" and indicating the type of follow-up which is being proposed.
- The program would be organized through the statewide Blue Shield Relations Committee and based on the District Blue Shield Relations Committees.
- Physicians who served as chairmen in the utilization study should be asked to become members of their respective District Blue Shield Relations Committees.
- The chairman of each Blue Shield District Relations Committee would call a meeting of his District Committee during the fall, the main agenda at these meetings to be a discussion of the "careful use program" and the functions of the Hospital Utilization Study Committee.

Dr. Glover has this to say in a summary of the study:

It is our feeling that the adoption of the proposed program of establishing hospital utilization study committtees by the Kansas Medical Society will go far toward keeping the idea of careful use of prepayment plans before the physicians and hospitals and that similar efforts should be made by Blue-Cross-Blue Shield in its Member Council program to inform the public of the need for careful use so as to bring about the most efficient use of the prepayment dollar. Our committtee will continue to meet periodically to study the results of the methods which emerge out of the local hospital committee approach.

Other members of the committee are Ivan D. Anderson, Emporia, Walter B. Coburn, Kansas City, representing the Kansas Hospital Association; E. Ray Gelvin, M.D., Concordia, who with Dr. Glover represented the Kansas Medical Society; Carl C. Lamley, Topeka, and Joe Smercheck, Manhattan, Blue Cross; and Russell Mosser, Lawrence, and E. J. Ryan, M.D., Emporia. Blue Shield ex-officio members were Thomas P. Butcher, M.D., president of the KMS at the time; Austin J. Evans, president of KHA at the time; Oliver Ebel, Executive Secretary, KMS, and Charles S. Billings, Executive Director, KHA.

American Association of Medical Assistants

More and more doctors throughout the country are coming to know what the American Association of Medical Assistants is doing to assist with the education of their members, and more and more interest is being shown by the medical societies, both county and state.

A Central Office with an Executive Secretary has been opened in Chicago. Plans are underway for educational courses which will be offered to those presently working in the field and to those interested in entering the field as medical assistants. The work in the doctor's office is highly specialized, and trained medical assistants are necessary to assist the doctor and to relieve him of many of the details which are a part of the office routine.

The American Medical Association and some state and county societies are aware of the need and have aided the medical assistants to form the American Association of Medical Assistants. Some few physicians who disapproved of the movement on the basis that it tended to create a union and may result in unreasonable demands by assistants upon their employers, have found nothing to substantiate their fears.

One of the principal purposes of the Association is to encourage girls engaged in this activity to become better educated, better trained, better qualified and more capable employees in their chosen vocation.

Every county medical society has an Advisory Committee in counties where the girls are organized. There committees back the girls and help them with their problems. The American Association of Medical Assistants is an infant who needs the support and "The Assistant" of every physician in the A.M.A. With a strong organization, its program of education will go into high gear and ultimately it will be the doctor who will reap the greatest benefits—well-trained, efficient help for his office will be more readily available. The greatest asset of this group is absolute sincerity of purpose. The basic reason for organization on all levels has been the desire of the members to further their education in this allied medical field. This desire and its fulfillment means that the medical assistant is trying to do a better job for her employer. There has never in the history of any chapter, never locally, state-wide or nationally, been any intent or even desire to organize for purposes of forming a union. The medical assistants are recognized and sponsored by the County, State and American Medical Associations.

The Third Annual Meeting of the Association will be held in Philadelphia, October 16-18, at the Benjamin Franklin Hotel. Medical Assistants and doctors are invited to attend.

Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. *Notice of the session is posted in advance to allow the physician time to make preparations.*

The Council on Postgraduate Medical Education of the American College of Chest Physicians will present the following Postgraduate Courses this fall:

14th Annual Course, CLINICAL CARDIOPULMONARY PHYSIOLOGY, Edgewater Beach Hotel, Chicago, October 5-9

12th Annual Course on DISEASES OF THE CHEST, Park Sheraton Hotel, New York City, November 9-13

5th Annual Course on DISEASES OF THE CHEST, Amabassador Hotel, Los Angeles, December 7-11

The course on Clinical Cardiopulmonary Physiology is the second to be presented by the Council on this timely subject. The New York City and Los Angeles courses will offer the most recent advances in the diagnosis and treatment of chest diseases—medical and surgical.

Tuition for each course is $100 including round table luncheon discussions.

Further information may be obtained by writing to the Executive Director, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

The Annual Fall Conference of the Kansas City Southwest Clinical Society, October 5 through 8, in the Municipal Auditorium, Kansas City, Missouri, will offer a postgraduate medical program featuring 17 distinguished doctors of medicine from throughout the United States.

Through symposia, panel discussions, and forums there will be depth of coverage of such subjects as Gastrointestinal Diseases, Cardiovascular Diseases, Trauma, Emphysema, Hepatobiliary Diseases, Carcinoma of the Cervix, Headache, Abdominal Pain, Anemias, Gastrointestinal Bleeding, and The Biochemistry of Disease. Postgraduate Breakfast Seminars and Round Table and Specialty Luncheons offer an opportunity for the attending physicians to ask questions of the guest speakers and to enter into the discussions. A Workshop on "Anticoagulants" at Kansas City General Hospital will be available to those desiring to devote one afternoon to first-hand demonstration and discussion by a teaching staff.

A highlight of the meeting will be a Trans-Atlantic Medical Conference which will link the Kansas City Southwest Clinical Society's Fall Conference with a concurrent meeting of the Royal Society of Medicine in Sheffield, England. This will be a Clinicopathologic Conference on Cardiopulmonary Disease with four of the guest speakers appearing on the Clinical Society program matching wits with four distinguished British physicians.

An outstanding array of scientific and technical exhibits will round out the conference. All physicians who are members of their county medical societies are cordially invited to attend.

The American Board of Obstetrics and Gynecology, Inc. announces that the next scheduled examination (Part 1), written, and review of case histories for all candidates will be held in various cities of the United States, Canada, and military centers outside the Continental United States, on Friday, January 15, 1960. Candidates must submit case reports to the office of the Secretary within 30 days of being notified of their eligibility to Part 1.

Current Bulletins may be obtained by writing to:

Robert L. Faulkner, M.D., Executive Secretary and Treasurer, 2105 Adelbert Road, Cleveland 6, Ohio.

The Kansas Trudeau Society will hold its annual meeting Thursday, October 22, at the Hotel Lassen in Wichita. The meeting will be in conjunction with the Kansas Tuberculosis and Health Association's two-day meeting which will be held there the 22nd and 23rd.

Several Kansas physicians will be participating in the meetings which will begin at 10:00 a.m. Thursday and continue through the next day. Dr. G. M. Tice, Kansas City, will be the guest speaker of the 6:30 Trudeau Society and TB Association's dinner held Thursday evening at the hotel. His topic will be "Radiation and Health."

Other doctors to be on the programs are:

Dr. James C. Dowell, Lawrence—presiding

Dr. John K. Fulton, Wichita—Treatment of "Resistant" Pneumonias

Dr. Ernest W. Crow, Wichita—Cardiac Arrhythmias

Dr. Marvin Dunn, Kansas City—Treatment of Resistant Congestive Heart Failure

Dr. William Nice, Topeka—Tuberculin Testing Surveys

Dr. Robert M. Brooker, Topeka—Atypical Acid-fast Infections

Dr. John K. Fulton, Wichita—Business Session

Dr. John K. Fulton, presiding—Round Table Discussion: Chronic Non-tuberculosis Lung Diseases

Participants:

Dr. Martin J. FitzPatrick, Kansas City, Moderator

Dr. Ben H. Buck, Jr., Wichita

Dr. Helen A. Dickie, Wisconsin University Medical School

Dr. Helen A. Dickie—Farmer's Lung

Extra-pulmonary Tuberculosis:

Dr. John I. Waller, Halstead—Genito-urinary

Dr. John F. Lance, Jr., Wichita—Tuberculosis of the Bone

Dr. Roy A. Lawson, Chanute—Tuberculosis Meningitis

Dr. J. L. Morgan, Emporia—Chronic Cor Pulmonale

"Stump the Experts" X-ray Panel

Participants:

Dr. Helen A. Dickie

Dr. G. M. Tice

The following day, Dr. L. M. Furcolon, Kansas City Communicable Disease Center, will moderate a panel discussion on the values of tuberculin testing and case finding. Dr. Martin FitzPatrick, University of Kansas Medical School, will give the keynote address "Challenges on the Road Ahead" at the Association's afternoon session.

Dr. Charles Pokorny, Halstead, extends invitation to all Kansas doctors interested in respiratory diseases to attend the combination meeting.

The Academy of Psychosomatic Medicine will hold its Annual Meeting at the Hotel Sheraton-Cleveland in Cleveland on October 15-17, 1959. The Meeting has been specifically planned for the psychosomatic orientation of the general practitioner, internist, pediatrician, obstetrician, and other nonpsychiatric physicians. There will be five Symposia—with four speakers in each Symposium—on Psychopharmacology, Anxiety, Mental Drug Therapy, Psychotherapy for the Nonpsychiatrist, and Depression. Panel discussions are scheduled on the psychosomatic aspects of gastrointestinal, arthritis-neuromuscular, and cardiovascular diseases; obesity; obstetrics-gynecology; alcoholism; geriatrics; headaches-migraine; pediatrics; hypnosis; allergy; pre- and postoperative care; and malignancy. There will be two panels on The Newer Anti-Depressive Drugs.

A list of the speakers includes: Edward Stainbrook, M.D., Chief, Department of Psychiatry, Medical School, University of Southern California; I. Arthur Mirsky, M.D., Professor of Clinical Science and Research Psychology, University of Pittsburg Medical School; Frank J. Ayd, Jr., M.D., Chief of Psychiatry, Franklin Square Hospital, Baltimore; David J. Impastato, M.D., Associate Clinical Professor of Psychiatry, New York University College of Medicine; C. Knight Aldrich, M.D., Chief of Psychiatry, School of Medicine, University of Chicago; Victor Szyrynski, M.D., Professor of Psychotherapy, University of Ottawa Medical School; A. Dixon Weatherhead, M.D., Chief of Psychiatry, Cleveland Clinic; Leo Alexander, M.D., Director, Neurobiologic Unit, Division of Psychiatric Research, Boston State Hospital.

Members of The American Academy of General Practice attending will receive one hour of category II credit for each hour in attendance. Added features are breakfasts and luncheons, a dinner-dance with entertainment, and daily tours and social events for doctors' wives. All interested physicians are invited. For further information address inquiries to: Zale A. Yanof, M.D., Program Chairman, Academy of Psychosomatic Medicine, 2282 Ashland Avenue, Toledo 10, Ohio.

The fine art of executive decision consists in not deciding questions that are not now pertinent, in not deciding prematurely, in not making decisions that cannot be made effective, and in not making decisions that others should make.—*Chester I. Barnard*

Book REVIEWS

An Atlas of Normal Radiographic Anatomy. By Isadore Meschan, M.A., M.D., with the assistance of R. M. F. Farrer-Meschan, M.B., B.S. (Melbourne, Australia), M.D. Price $16.00. 759 pp. Published by W. B. Saunders Company, Philadelphia and London, 1959.

This is the second edition of this excellent work by the authors. The first edition has been very popular in all radiology offices, used often by x-ray technicians to gain a better understanding in positioning of patients for all radiographic procedures.

In no other text is there better correlation of anatomy with the x-ray findings. There are numerous radiographic reproductions with detailed labeling of the parts.

This new edition covers the same material as the first one, but adds such practical new subjects as radiation protection, bone growth and development, arteriography and venography of the brain, cervical myelography, and special studies of the heart and major blood vessels.

This text is highly recommended for all radiologists and x-ray technicians. It should be an excellent addition to any library of the orthopedic surgeon, the internist, the pediatrician, and the general practitioner.—*D.M.M.*

Patient Care and Special Procedures in X-ray Technology. By Vennes and Watson. Publication date: April 30, 1959. Price $5.75. 200 pp. Published by The C. V. Mosby Company.

This volume of 195 pages treats the subject material in a clear and concise manner. Heretofore there has been no volume written that covers all of the important procedures outlined in this text.

There are ten chapters, titled as follows: Introduction to Patient Care; The Technician and the Patient; The Technician and General Patient Care; Radiography and Fluoroscopy; The Technician and Special Patient Care; The Technician and Special Patient Care —Indications for Only Bedside Radiography; The Patient and Diagnostic Examinations; Neuroradiography; Vascular Radiography; Radiography in the Operating Room and the Recovery Room.

This book should be a "must" in every hospital radiology department, a text for every nurse working in a hospital, and especially recommended for nurses in supervising capacity such as operating room and floor supervisors.—*D.M.M.*

Ciba Foundation Symposium on the Regulation of Cell Metabolism. Price $8.75. 302 pp. Boston, Little, Brown and Company, 1959.

This symposium originated with a proposal of Dr. Hans Krebs, Nobel prize winner. The central theme suggested by Dr. Krebs is the regulation of cell metabolism at the substrate level. A distinguished group of investigators, including Nobel prize winner, Fritz Lipmann, presented their views on this important question. In general the book is a stimulating one for anybody *well versed in biochemistry*, particularly the discussions following the presentations of the some 20 papers given at this symposium. On the other hand, it might prove to be extremely confusing to anybody who lacks firm biochemical background.

—*S.G.*

A Way of Life and Selected Writings. . . . By Sir William Osler. Price $1.50. 275 pp. New York, Dover Publications. Paperbound.

This inexpensive paper-back reprint of a volume that appeared in 1951 as *Selected Writings of Sir William Osler* gives a good sampling of the humanistic writings of a man who has become so much of a myth that every one talks about him but no one reads him. It includes six of the biographical pieces Osler did so well, such frankly inspirational lectures as "The Student Life" and "A Way of Life" and, what may turn out to be his most important contributions, those studies in the humanism of science, "The Growth of Truth" and "The Old Humanities and the New Science."—*G.S.T.C.*

The Kansas Medical Society—1959-1960

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Intestinal Flora

Fungal Flora in Human Intestinal Tract, in Health and Disease

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A review of the literature on fungi found in the human intestinal tract: A local study of preoperative fungus cultures and similar studies after antibiotic therapy and at operation. The effect of disease on fungus cultures.

Introduction

In the past relatively little attention has been focused on the mycotic flora of the intestinal tract of man in comparison to the interest in the bacterial flora. This is not difficult to understand since the fungal diseases of the intestinal tract are few and benign. Since the advent of oral antibiotic therapy, the yeast flora of the intestinal tract has received a little more attention from doctors and investigators than previously. In recent years articles have appeared in various medical journals describing case histories of mycotic infections which have risen in the intestinal tract as a result of antibiotic therapy. Antibiotics alter the ecological balance of the microbial flora of the intestinal tract. Some yeasts, most notably *Candida albicans*, act as opportunists in this environmental situation and cause disease.

It is interesting to note that many of the studies on the normal fungal flora of the intestinal tract started as attempts to determine if certain specific fungi were the etiologic agents of a disease. Before one can implicate an organism that is present as a causal agent of a disease, it becomes necessary to know if that organism is absent or present in normal situations.

The stimulus for the experimental work reported here arose while doing yeast counts on feces for another project.[8] The various yeast colonies observed were picked and attempts made to identify them. One of the problems in this study is that only recently has the taxonomy and nomenclature of fungi and particularly the yeasts arrived at any semblance of order. This largely invalidates much of the earlier literature since it is difficult to ascertain if the organisms are the same as those referred to now. This is because names have been changed.

Another problem is that, since the bacteria greatly outnumber the fungi and since fungi grow more slowly than most bacteria, it is necessary to have a

This paper in its original form was submitted to the Dean of the University of Kansas School of Medicine by Dr. Nachtigall as partial fulfillment of the requirements for the second year of Medical School. The experimental work was supported by a fellowship from the Research Committee of the Medical School. Dr. Nachtigall is interning at the General Hospital, Kansas City, Missouri, and Dr. Riesen is at the University of Nebraska College of Medicine, Omaha, Nebraska.

medium that completely inhibits bacteria, but does not hinder the growth of yeasts.

Review of Literature

The presence of fungi was associated with disease conditions of the human body earlier than was the presence of bacteria. Because of their larger size, fungi were easier to observe and study microscopically. Nye, Zerfas, and Cornwell stated that yeast-like fungi were first recognized and studied by Langenbeck in 1839. Anderson stated that a paper by Casagrandi in 1898 is one of the earliest and most comprehensive works on the subject of the yeast flora of the human intestinal tract. Even with this early start, it is only recently that the taxonomy and classification of the fungi associated with human disease have been put into reasonable order. For this reason the comprehensive article by Anderson (1917) will be considered the starting point of this discussion. Even with this limitation of time, it is occasionally difficult to associate the different names used for the same organism.

TABLE I

Monilia psilosis	5.6 per cent
Monilia parapsilosis	10.1 per cent
Other fungi—chiefly *Saccharomyces*, *Torula*, *Oidium*, and *Mycoderma*	28.7 per cent
Negative of all fungi	55.6 per cent

Anderson in an attempt to determine the presence, or absence, and the relative abundance of yeast-like fungi in the intestinal tract of man, plated a total of 229 samples from 175 persons. From the 85 samples yielding yeasts, 113 strains were isolated. Summarizing his results he concluded that yeast-like organisms are present only in relatively small numbers in healthy people, but are present in practically all human feces. His opinion was that most of these yeasts had been wild yeasts ingested with food and were just passing through the intestinal tract without multiplying there. In an experiment he fed an individual a culture of yeast obtained from a case of sprue. From the results of this experiment he concluded that this organism did live and multiply in the intestinal tract of man.

Wachowiak, Stryker, Marr, Bock, and Fleisher recording only monilia, found them in the stools of six of 100 normal persons.

Nye, Zerfas, and Cornwell were primarily interested in the importance of yeast-like fungi in the intestinal tract of pernicious anemia patients. Almost all of the stool samples studied were from patients with medical illnesses. Since these illnesses were not caused by fungi, the results seem to agree with the findings of others for normal persons. A total of 192 stools from 121 individuals yielded yeasts on culture in 51 cases. This is an incidence of 42 per cent which agrees well with the 43 per cent found by Anderson. Because many of the plates showed only one or a few colonies, it was decided that only plates with ten or more colonies on first isolation were positive. This reduced the number of positive stools to 15 per cent. All of the yeasts isolated except one were classified as *Parasaccharomyces*. This name is synonymous with the present term *Candida*. The one exception was a culture of *Endomyces*. None of the 15 per cent positive cultures except the one *Endomyces* could be differentiated from what we now classify as *Candida albicans*.

TABLE II

Monilia albicans	18 per cent
Monilia parapsilosis	2 per cent
Monilia krusei	13 per cent
Monilia unidentified	3 per cent
Cryptococcus Group I	12 per cent
Cryptococcus Group II	1 per cent
Cryptococcus Group III	3 per cent
Cryptococcus Group IV	10 per cent
Mycoderma Group I	41 per cent
Mycoderma Group II	0 per cent
Saccharomyces sp.?	3 per cent
Zygosaccharomyces sp.?	1 per cent

Ashford, working in Porto Rico, cultured the feces from 872 persons. Of these, 178 were healthy boys from a charity school. The results from the healthy individuals are shown in Table I.

The primary difference between the results from the healthy individuals and those with illnesses was in the percentage of stools that contained yeasts. The type of organisms remained the same. Ashford concluded from his work that 95.3 per cent of the mycologic denizens of the intestinal canal in Porto Rico fall into five genera and about 12 species.

TABLE III

	Number Isolated	*Per Cent*
Monilia albicans	53	16.9
Monilia parapsilosis	21	6.1
Monilia krusei	18	5.7
Monilia candida	16	4.4
Penicillium	37	11.8
Aspergillus	11	3.5
Geotrichum	91	29.0
Cryptococcus	88	28.0
A. pink	14	4.5
B. creamy tan	74	23.5

The yeast-like organisms recovered from the feces of 100 normal persons were studied by Benham and Hopkins (1933). Their findings are recorded in Table II.

They found fungi in 80 per cent of the persons studied. Of these 80 persons, 29 had two or more species present at the same time. Thirteen of the persons from whom *Monilia albicans* was obtained, had cultures taken every month for from one to six months. One case had none on the second culture, another was negative after the fourth month, and a third case was negative after six months. The remaining ten gave positive results—four for six months, two for two months, and four for one month. From these results it was concluded that real colonization occurs in the human intestinal tract.

Another study using 314 fecal samples was done by Schnoor. Of these samples, 60 were from medical students and 254 from hospitalized patients without any gastrointestinal or skin disease. His findings are tabulated in Table III.

Of the *Monilia*, 108 strains were isolated from 104 samples. Schnoor believed that yeasts are always present but may not be in large enough numbers to be demonstrable and that certain conditions may merely increase their number until they are demonstrable.

Swartz, in a study of 24 cases of normal persons, found five *Geotrichum* and three unidentified yeasts which were not *Candida albicans*.

A very large and excellent study was done by Felsenfeld in which he went to a state hospital for his subjects. The patients used in this study can be divided into three groups. The first group consisted of 300 newly admitted patients and 600 patients from chronic wards. The second group was composed of 100 typhoid carriers. The third group consisted of diarrhea cases which were subdivided into three groups, 103 cases of food upsets, 47 early acute *Shigella* infections, and 51 bacillary dysentery cases one week after termination of sulfathiazole therapy The results are given in Table IV.

TABLE V

	No. Isolated
Blastocystis	53
Candida	5
Saccharomyces	3
Geotrichum	8
Aspergillus	4
Rhodotorula	8
Penicillium	5
Torulopsis and *Cryptococcus*	5

One of the questions asked was, "Does hospitalization alter intestinal flora?" In this study the number harboring organisms did not change, but many carriers of one organism became carriers of two or three organisms. Sulfa treatment reduced the number of mycotic carriers, especially those carrying *Geotrichum*.

Almeida, Lacaz, and Barros selected 100 cases considered normal. In the literature reviewed they were the first authors to look for *Blastocystis* and record it with the normal fungal flora of the human intestinal tract. Their findings are given in Table V.

In eight cases two different fungi were isolated from one individual, and in two cases three different

TABLE IV

	New Admissions	*Ward Cases*	*Typhoid Carriers*	*Food Upset*	*Bacillary Dysentery*	*Treated Dysentery*
No. of cases	300	600	100	103	47	51
	Per Cent	*Per Cent*	*Per Cent*	*Per Cent*	*Per Cent*	*Per Cent*
Monilia albicans	19.3	37.7	34	40.8	44.6	12
Monilia parapsilosis	4.3	4.3	3	0.9	4.2	2
Monilia krusei	2.3	2.7	4	0.9	2.1	0
Monilia (others)	0.3	0.5	2	1.9	4.2	0
Monilia (total)	26.3	45.1	43	45.6	55.3	14
Cryptococcus	24.0	39.2	35	34.9	34.9	12
Geotrichum	23.0	29.1	26	56.3	53.1	6
Distribution						
Negative	26.6	24.6	26	14.6	17.0	74
1 sp. present	68.6	45.3	48	36.8	36.1	20
2 sp. present	4.7	25.8	22	45.6	36.1	6
3 sp. present	0	4.5	4	3.9	10.6	0

TABLE VI

	No. Isolated
Saccharomyces sp.	4
Debaryomyces kloeckeri	2
Torulopsis glabrata	3
Torulopsis inconspicua	1
Torulopsis sp.	3
Candida albicans	58
Candida krusei	5
Candida rugosa	2
Candida zeylanoides	1
Candida parapsilosis	1
Candida sp.	3
Rhodotorula sp.	4

genera were isolated. The author postulates that some of the observed differences may be due to different environments, climates, nutrition, and hygienic conditions.

The next three studies were done with children. Rezza studied the mycotic flora during the first months of life and quite frequently found yeasts in the feces of newborn from the third day of life. Most of the organisms were *Candida albicans*. Di Menna isolated yeasts from the feces of 188 children and classified them as shown in Table VI.

Carpenter, identifying yeast-like fungi isolated from children, found in the feces four *Candida albicans*, one var. *stellatoidea*, and one *Candida krusei*. Carpenter considered *Candida stellatoidea* a variety of *Candida albicans*.

Two German workers, Staib and Windisch, during some work on the accompanying flora of yeast in the intestinal tract, isolated the yeasts listed in Table VII.

TABLE VII

	No. Isolated
Candida albicans	90
Candida tropicalis	19
Candida krusei	21
Candida mycoderma	10
Candida solani	2
Candida parapsilosis	2
Candida brumptii	1
Candida pelliculosa	1
Candida rugosa	1
Candida scottii	1
Torulopsis inconspicua	10
Torulopsis glabrata	5
Torulopsis famata	1
Pichia fermentans	2
Hansenula anomala	2
Trichosporon cutaneum	2
Saccharomyces carlsbergensis	2
Rhodotorula mucilaginosa	3

Materials and Methods

The specimens used in this study were from patients at Kansas University Medical Center and the V.A. Hospital of Kansas City, Missouri, on whom abdominal or intestinal surgery was to be performed. From each patient either two or three samples were collected. The first sample was a stool specimen just before antibiotic therapy was begun. The second specimen was taken after 24 hours of intensive oral antibiotic therapy and was usually an enema return. The third specimen, when taken, was taken at the time of surgery as a swab in the area of resection. One gram of the fecal sample was weighed and emulsified with a small amount of sterile saline in a sterile 250 ml Erlenmeyer flask with glass beads. After it was well emulsified, sterile saline was added to make a total of 100 ml and the specimen was well mixed. One ml of this was then plated and one ml used for serial ten-fold dilutions. The enema returns were well mixed and one ml taken and plated and one ml used for serial ten-fold dilutions. The swabs were broken from the applicator sticks and dropped into a nine ml sterile saline blank, shaken well, and used for plating and further ten-fold dilutions.

The medium used was mycophil agar (BBL) which was tubed in 20 ml amounts and sterilized. At the beginning of the project, Littman's medium (Difco) was used, but mycophil agar was found to be more applicable to this problem.[14] When ready for use the medium was melted and 0.3 ml of 10 per cent lactic acid added. One ml of the appropriate dilutions of the specimen was pipetted into a sterile petri plate, the melted, acidified agar poured into the petri plate and rotated so as to evenly suspend the diluted specimen. The dilutions plated were 10^{-2} to 10^{-6} on the first specimen, and 10^{-1} to 10^{-3} on the second and third specimens. The plates were incubated at room temperature for one week.

Counts were taken on the plates, and all the different kinds of yeast colonies on a plate were subcultured on mycophil agar slants at a pH of 7.0. This stock slant served as the source of inoculum for the sugars used for identification. The sugar tubes were incubated at room temperature for seven days and then read for acid and gas formation.

The sugars used were glucose, sucrose, maltose, lactose, and galactose. The fermentation media consisted of nutrient broth (Difco), 8 g; sugar, 10 g; brom cresol purple solution (0.04 per cent), 10 ml; distilled water, 1000 ml. This medium was tubed in inverted vial fermentation tubes and autoclaved. In this work the yeasts, except *Candida krusei*, were

identified only on the basis of biochemical reactions with the realization that this has its limitations. The strains of *Candida krusei* were further characterized by Jensen and von Riesen (unpublished data) by colonial morphology and pellicle formation in broth.

Experimental Results

Of the 106 patients on whom yeast counts were done, detectable amounts of yeast were found in the pretreatment specimen in 62 cases or 58.5 per cent; but when all three samples were taken into account, 87 cases or 82 per cent showed detectable numbers of yeast. It must of course be realized that in some cases only a few colonies were found on the plate of the lowest dilution. In some patients yeasts were not found in the first sample but appeared after therapy in the second or third specimen. In other patients yeast was present in the first specimen and disappeared in the second and third.

Seventy-four strains of yeast were isolated from the 51 patients studied qualitatively. These isolates were studied for their fermentation characteristics in the five carbohydrates: glucose, sucrose, maltose, lactose, and galactose. The results are presented in Table VIII.

In considering the species incidence of *Candida* in the 51 patients from whom yeasts were isolated, *Candida albicans* was present in 23, or 45 per cent; *Candida tropicalis* was present in 21, or 41 per cent; *Candida krusei* in seven, or 14 per cent; *Candida pseudotropicalis* in two, or four per cent; and *Candida parakrusei* in one, or two per cent.

In 29, or 57 per cent, of the 51 patients from whom yeast-like organisms were isolated, only one species was present; in 21, or 41 per cent, two species were present; and in one, or two per cent, three species were present.

Discussion

From the works of Rezza, Di Menna, and Carpenter it appears that yeasts establish themselves in the intestinal tract of man in the first few days of life and remain there through the entire life of the individual. Although no worker has isolated yeasts from 100 per cent of cases, the consensus appears to be that they are present in all people. This could be so since the methods used are not sufficiently sensitive to isolate yeasts from individuals with very low counts.

TABLE VIII

	Number Isolated	*Per Cent of Isolates*
Candida albicans	23	31
Candida tropicalis	21	28.4
Candida krusei	7	9.5
Candida pseudotropicalis	2	2.7
Candida parakrusei	1	1.4
Geotrichum candidum	4	5.4
Unidentified	16	21.6

Anderson believed that the yeasts isolated from feces were primarily wild yeasts which were merely passing through the intestinal tract. This is very likely true of mold spores. But such organisms as the *Candida* which are so frequently present are undoubtedly actual denizens of the intestinal tract of man. To this probably should be added also the genera *Geotrichum* and *Cryptococcus* as common inhabitants of the gut. The organisms that merely transiently pass through are likely to be found in only small numbers. In this regard it is also interesting to note that only one person recorded the presence of *Blastocystis* and that in a large number of cases. Further work will be needed before anything more can be said about this.

Mention was made above of the possibility that mold spores are ingested and pass through in the feces. Some of the papers discussed in the historical section listed molds such as *Penicillium* and *Aspergillus*. During the experimental work on this problem, it was observed that at various times mold colonies appeared in numbers that indicated that they were present in the fecal sample and decreased in number with increasing dilution. Since it is not known if the equipment and containers used to handle and transport the specimen to the lab were sterile, no conclusions can be drawn from this observation at present. The possibility of contamination must be considered.

It appears from the results of various workers that there can be quite a variety of fungi present in the human intestine and in a fairly wide range of concentrations. Some authors suggest that geographic, climatic, nutritional, or hygienic conditions could explain the differences in results. To this should also be added medical therapy, particularly antibiotic therapy. It is possible that because of changes in the above conditions, the results of investigators in the future may continue to be different. The present day practice of antibiotic therapy may alter the fungal flora of the intestinal tract.

The question can be raised in regard to some of the work cited in the history (and the work given in this paper) about the influence of illness, of the subjects used, on the results. Evidence would indicate that the concentration of organisms, but not the kind of organisms found, can be expected to be altered. In fact this may aid in bringing out organisms present in numbers too small to detect.

The results of this work appear to indicate that

Candida albicans is not present as predominantly as others have indicated since it was found that *Candida tropicalis* and *Candida krusei* accounted for 41 and 14 per cent, respectively, of the strains of *Candida* isolated. This throws doubt on the frequent reference in medical literature to any *Candida* isolated as *Candida albicans* without careful identification of the organism.

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Health Survey

Chronic conditions affecting health limit the normal activity of an estimated 17 million people in the United States, according to findings developed from nationwide household interviews conducted in the National Health Survey of the Public Health Service.

These 17 million persons, representing 10 per cent of the population, are limited in their ability to work, keep house, or pursue outside activities. A segment of this group amounting to 3 per cent of the population or an estimated 4,855,000 persons have trouble moving about or cannot move about without help. Of the latter group, about 1 million persons are completely confined to their homes.

The figures do not include military personnel or people in mental or other types of long-term institutions.

Activity limitations were reported most frequently among low income families and older people.

—Among families with incomes of less than $2,000 a year, one in every five persons had some activity-limiting condition; for those with incomes of $7,000 or more, only about one in every 15 persons was similarly limited.

—About one in every 70 children under 15 years of age was reported to have some activity limitation, whereas about half of the persons 75 years of age and older fell in this category.

The estimates are derived from interviews conducted for the National Health Survey by the U. S. Bureau of the Census with a representative sample of the population. The information recorded about individuals is confidential and only statistical totals are published.

The report is entitled "Limitation of Activity and Mobility Due to Chronic Conditions, United States, July 1957-June 1958," Public Health Service Publication No. 584-B 11. Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at 30 cents each.

Radiopaque Drains

Marking Soft Rubber Drains for X-Ray Visualization

C. F. TAYLOR, M.D.; *and* W. A. SMILEY, JR., M.D., *Norton*

The increasing number of chest surgery cases and the not uncommon situation of wide open thoracotomy wounds have led to our development of this procedure. Any drain which is used in the chest, in our opinion, should be marked so that x-ray film will reveal it as a foreign body in the chest cavity. The chest cavity is a large enough space so that it is entirely possible that a drain the size of a Penrose could be "lost" as it were, inside this space. In this event the drain could only be found either through exploratory operation, or by x-ray examination in case it has been marked. We have contacted several medical supply houses and have been unable to obtain any such drain which is marked for x-ray visualization. One company stated that they were working on this problem.

Figure 1. Case of Obstructive Jaundice Catheter through C.B.D. and into duodenum. Arrow points at "Marked Penrose Drain."

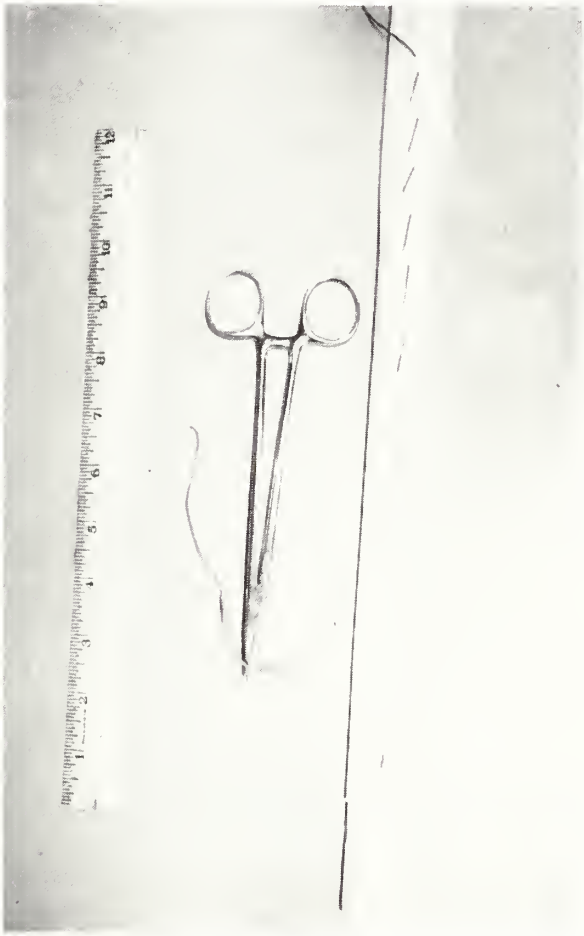


Figure 2. "Marked Penrose Drain" on wooden dowels used for sewing marking material through drain.

First Tried Sponges

We first tried threading the marking tape from sponges used in surgery through a Penrose drain using a curved cutting needle, and this worked very well. But, in considering the expense of this procedure, we decided to try other materials. No suture material except steel and vitalium would show on x-ray plate. So these were abandoned. It was found

that rubber bands would show fairly well on the x-ray film. So, at the present time these small rubber bands are used for marking the Penrose drains. Rubber bands are vulcanized (process by which sulfur is added to raw rubber with the addition of heat). Also, lamp black (soot) is added. This contains carbon which may be the element which causes rubber bands to be radiopaque on x-ray film. It is this fact of radiopacity combined with the low cost of the rubber bands and the elasticity plus the ability to be sterilized that was the reason for their selection to mark these Penrose drains.

Threading Arrangement

We also developed a simple arrangement for threading the marking material through the drain. This consists of two round dowel-like pieces of wood about sixteen inches long. These are selected so that their combined size will allow a Penrose drain to be passed over the dowels. These two pieces of wood are fastened together with screws, side by side. The Penrose drain is passed over the wood pieces, and the marking material, the rubber band in this case, is threaded on a small cutting needle of proper size and sewed through the drain in the groove between the two wooden dowels. This procedure has worked out very well in our institution, and at the present time all similar drains used in surgery are marked in this fashion.

State Sanatorium of Tuberculosis
Norton, Kansas

Doctor Public Relations

Have the people of America really changed their attitude toward their doctor? The doctor of a few generations ago certainly was a revered and respected person. Judging from the tone of many magazine and newspaper articles, this is no longer true. It seems that anti-doctor literature is very popular with the press and that people really want to read it. Lambasting doctors and their attitudes and their fees has become a frequent pastime of some metropolitan newspaper writers. When circulation slumps, a series of articles critizing organized medicine would appear to be a good remedy. This is apparently true with the popular magazines also.

Is this done because the readers wish to see their physicians placed in such poor perspective? The best that we seem to be able to do in the press is to make occasional, feeble and belated denials of charges that are untrue. If the press does express the attitude of the people, then physicians everywhere should do some serious self-examination.

Certainly the failure to maintain esteem does not arise from the lack of excellence of medical care. This is, today, better than it has ever been and patients know it. The dissatisfaction, then, must lie elsewhere, and perhaps we have not far to look to find it.

In recent years the development and extensive use of specific drugs have shortened, simplified, and, in some cases, eliminated diagnosis. The greater employment of laboratories and diagnostic machines has gone a long way toward seeming to eliminate the doctor. The use of machines and drugs is not a reversible process, nor would we want it to be. However, it does result in some feeling by the patient that it is not entirely the doctor who is helping him.

Overspecialization has also aroused the irritation of the public. "Nowadays," the patient complains, "I have to sit down and figure out for myself whether I need a chest man, a bone man, a heart man, a stomach man, or some kind of a man I've never even heard of, and then when I do decide, I don't know where to find him." So he settles for going to a clinic where he is certainly not treated as an individual but feels that at some point in the series of doctors he sees he'll encounter the one who goes with his ailment.

There are no ready answers to the problem, but it seems clear that we, the doctors, should make an extra effort to show interest in the patient as an individual and let him know that mechanization and specialization have not basically changed us. In addition, a well-planned constructive public presentation of the doctor's case should be made.—*Westchester (N. Y.) Medical Bulletin.*

Cardiac Resuscitation

Part I—Etiology, Incidence, and Diagnosis of Arrest

ALFRED M. TOCKER, M.D.; VAN S. PARMLEY, M.D.; AGUSTIN ARBULU, M.D.; H. M. HOLLADAY, M.D.; ***and*** **IRENE GLEICHMAN, R.N.;** ***Wichita***

Replies received during a recent survey of Kansas hospitals with reference to cardiac arrest cases indicate that within the past five years this catastrophe has been experienced by 89 per cent of hospitals with more than 100 beds, half of hospitals with 50 to 100 beds, and a third of hospitals with less than 50 beds (Table I). Furthermore, more cardiac arrest cases were reported within the past year than during any preceding year. Many successful resuscitations were reported. The results in such cases in Wichita during the past four years are set out in Table II *(in Part II in the November issue)*.

Cardiac arrest may be defined as cardiac asystole or ventricular fibrillation and is incompatible with life. It has occurred in practically every hospital where major surgery is performed. As indicated by this survey of Kansas hospitals, the greater the number of beds and the larger the surgical service, the more likely the occurrence of this catastrophe. Its occurrence presents an emergency (and not a hopeless situation) for which there is accepted and effective treatment.

The self-contained attitude that this will not happen to one is unfortunate and broods a dangerous situation of unpreparedness. No longer should performance of cardiac massage for cardiac arrest be considered an act above and beyond the line of duty of the surgeon. Just as every doctor is expected to treat insulin shock in a known diabetic with glucose, so, in our opinion, every surgeon should be prepared to treat cardiac arrest by cardiac massage.

Just as every hospital is equipped with fire extinguishers, so, in our opinion, every operating room should be equipped with a cardiac defibrillator. Other apparatus—such as cardiac pacemakers and monitors—are rapidly gaining acceptance. There is no good substitute for this apparatus when it is needed, however seldom that may be. No longer should we boast of improvising a defibrillator with the exposed wires of a light cord. We feel no operating or recovery room should be considered fully equipped, in justice to the patient, unless such apparatus is on hand. The apparatus must also be available in other parts of the hospital, such as the emergency room.

The staffs of many hospitals wisely review at least once annually treatment of cardiac arrest. Provision is made to have the necessary equipment checked and in working order at all times, with properly marked brief instructions. In a number of the largest cities, such as Cleveland and Los Angeles, the local heart associations have undertaken a campaign of education in this field. In Wichita The Sedgwick County Chapter of the Kansas Division of The American Heart Association is supporting a program of repeated demonstrations of the technique of cardiac massage which permits each physician to practice on an experimental animal until he masters the techinque effectively. This demonstration practice course is available to all hospital staffs upon request.

With the development and acceptance by the profession of a highly successful means of cardiac resuscitation when properly carried out, the authors raise the question of the moral, professional, and legal obligations of physicians and hospitals in the treatment of cardiac arrest. The Sedgwick County Chapter of the Kansas Division of the American Heart Association is sponsoring a practice demonstration course, available to hospital staffs upon request, to enable surgeons to master the technic of cardiac massage on experimental animals.

Incidence

Generally Speaking, Cardiac Arrest Is a Common Daily Occurrence

It has been estimated that this catastrophe occurs as many as 10,000 times annually in this country,

From the Departments of Surgery of the Veterans Administration, Wesley, St. Francis, and St. Joseph Hospitals and the Department of Anesthesia of Wesley Hospital, Wichita, Kansas. This study was supported by grants from the Leo McGuire Research Fund and The Sedgwick County Chapter of the Kansas Division of The American Heart Association.

varying from one per 696 to one per 24,000 operations. It is difficult to determine statistically the occurrence of cardiac arrest, as numerous cases occur which are never reported as such. For example, it is probable that many of the sudden deaths which occur in dental offices which are attributed to heart attacks are in reality cases of cardiac arrest. Few hospitals in which major surgery is performed routinely, even in moderate volume, deny experience with this catastrophe. In this respect, Kansas hospitals are no exceptions. Although cardiac arrest may occur unexpectedly in any and all cases, minor or major, it is more likely to occur during extensive and prolonged procedures and occurs more commonly during operations on the heart and other mediastinal structures, great vessels, throat, and neck.

Etiology

The Common Denominator in Most Cases Of Cardiac Arrest Is *Hypoxia*

Cardiac arrest may be defined as sudden cessation of cardiac function from the effects of anesthesia or surgical manipulation. It may result from pacemaker failure or the disruption of the electrodynamics of the cardiac cycle. The causes fall primarily into two major categories—the patient's intrinsic disease and the medical and surgical technics. Some of the many factors contributing to cardiac arrest are set out under Table Ia. While all do not concur, it is generally accepted that the "common denominator" in most cases of cardiac arrest is hypoxia. This may be *respiratory* (inadequate oxygen in the anesthetic mixture, obstruction in the tracheo-bronchial tree, or a barrier at the alveolar membrane preventing the oxygen from reaching the blood stream) or *circulatory* (shock, blood volume loss, or cardiac rhythm disturbances). Types of hypoxia may be classified as follows:

1) Anoxic, due to respiratory obstruction, low inspiratory oxygen level, or hypoventilation.

2) Anemic, due to hemorrhage or anemia.

3) Stagnant, due to shock, cardiac inefficiency, hypotensive drugs or spinal anesthesia.

TABLE I

KANSAS HOSPITALS HAVING CARDIAC ARREST CASES WITHIN PAST FIVE YEARS

Hospitals with 100 or more beds (19 of 33 hospitals replying)	89%
Hospitals with 50 to 100 beds (24 of 33 hospitals replying)	50%
Hospitals with less than 50 beds (70 of 104 hospitals replying)	33%

TABLE Ia

FACTORS CONTRIBUTING TO CARDIAC ARREST

HYPOXIA {Respiratory / Circulatory}

Respiratory acidosis (Hypercapnea)
Increased amount of CO_2 in lungs and hence in circulation.

Electrolyte imbalance.

Blood volume loss, shock, anemia.

Anesthetics and anesthetic technics.

Drugs (overdosage and inadequate dosage).

Underlying cardiac disease occurring at time of operation (coronary occlusion), or existing prior to operation.

Cardiac rhythm disturbances (ventricular fibrillation).

Abnormal pulmonary function.
(Decreased vital capacity, pulmonary disease).

Direct or reflex parasympathetic (vagus nerve) stimulation.

Sympathetic stimulation.

Poor state of nutrition.

Anxiety.

Abnormal body temperature. (Elevated temperature or hypothermia).

Trauma and effects of operation resulting from manipulations and disturbances of respiratory or cardiac structures.

Errors in judgment.

Unknown.

4) Histotoxic, due to overdosage of anesthetics.

5) Metabolic, due to high oxygen demand.

Prevention

More Important Than Treatment Is *Prevention* of Cardiac Arrest

A study of the etiological factors of cardiac arrest leads to the conclusion that in almost every case the catastrophe is preventable. Careful attention to, and avoidance and correction of, contributing factors set out under Table Ia from medical, surgical, and anesthetic standpoints are essential.

Impending cardiac arrest detected clinically, by attached cardiac monitors, or by electrocardiography permits steps to be taken to prevent its occurrence.

Diagnosis

DIAGNOSIS: ABSENT PULSE, Absent Blood Pressure, Absent Arterial Bleeding, and Impalpable Heartbeat

Failure to feel the carotid pulse or get a blood pressure is sufficient justification on the part of the anesthetist to sound the alarm. An *absent pulse* in

CARDIAC RESUSCITATION SET-UP

INSTRUMENTS

Long No. 3 scalpel with No. 10 blade attached
Rib spreaders:
  Adults—Finochietto
  Children—Tuffier
  Infants—Special infant rib retractor or may use thyroid retractor
Rib shears
  Bethune rib shears
Long Mayo-type scissors
Hemostats (3)
Schnidt tonsil hemostats (2)
Tissue forceps (with and without teeth)—regular and long lengths
Syringes—10 cc (4)
3″ Needles (No. 22)
Medicine Glasses (4)
4″ x 4″ sponges
Sterile defibrillator electrodes

itself is diagnostic, supported by absent blood pressure, absent arterial bleeding, and impalpable heart beat.

Cardiac monitors are now available which give visual and audible warning of impending or actual cardiac arrest and ventricular fibrillation and even automatically initiate treatment by external stimulation the instant cardiac arrest or threatening cardiac arrhythmias occur.

Cardiac Resuscitation Set-Up*

The only instrument required by the surgeon for starting treatment of cardiac arrest is a *SCALPEL*

A cardiac resuscitation set-up should be available for emergency use at all times. Actually, the surgeon should start treatment by opening the chest and massaging the heart immediately without waiting for this special equipment. He should do this without waiting for any action on the part of the anesthetist, as some oxygen is present in the stagnated blood. Under the worst of circumstances, mouth-to-mouth breathing can be used,** but in the operating room the anesthetist can usually assure a clear airway and oxygenate the patient with a mask, if necessary intubating him as soon as he is well oxygenated in this manner.

The emergency cardiac resuscitation set-up, *which should be on a mobile cart for immediate movement to any part of the hospital,* consists of (1) instruments, (2) drugs, and (3) special apparatus (in particular, a ventricular defibrillator). Equipment for the anesthetist should also be available in set-ups to be used outside the operating rooms (emergency rooms, post-anesthetic recovery units, etc.).

* By combining the cardiac resuscitation set-up with instruments for emergency tracheotomy, an excellent emergency "crash cart" is available for use throughout the hospital.

** Johnson & Johnson Corp. have recently placed on the market a simple, efficient, reasonably priced, and approved, Safor airway known as a Resusitube® airway for mouth-to-mouth breathing. We feel this apparatus should be available in every emergency set-up outside of the operating room.

CARDIAC RESUSCITATION SET-UP

EQUIPMENT FOR ANESTHETIST

Oxygen
Selection of masks (with breathing bag)
  or, preferably, AMBU resuscitator breathing bag and masks
Laryngoscopes
  Wis-Foregger blades No. 1, No. 2 and No. 3 with interchangeable Foregger handle
Endotracheal tubes (with set of adapters)
  For Adults: cuffed No. 30, No. 34 and No. 38
  For Children: No. 14, No. 18, No. 22 and No. 26
Suction apparatus
Connectors
Lubricant

Surgical Instruments

A suggested instrument set-up is listed below. We feel it wise *not* to include articles necessary for closure of the chest to remind the surgeon that he should not be in too great a hurry to close the chest once the heart beat has returned, but should observe the heart for a while.

EQUIPMENT FOR ANESTHETIST

Separate set-ups with the necessary equipment for the anesthetist must be available on a mobile cart, particularly for treatment of cardiac arrest cases in areas other than the operating rooms.

The AMBU resuscitator* breathing bag and

* Sold by Air Shields, Inc., Hatboro, Pa.

CARDIAC RESUSCITATION SET-UP

DRUGS

Epinephrine HCl 1:1000	1 cc. Ampuls
Calcium Chloride 10% Solution	10 cc. Ampuls
Atropine Sulfate 1/150 Gr. Per cc. 1:5000	10 cc. Vials
Levophed Bitartrate 100 Mcg. Base Per cc.	2 cc. Ampuls
Isuprel	1 cc. Ampuls
Procaine HCl 1% Solution	100 cc. Vial
Normal Saline	100 cc. Vial

CARDIAC ARREST DRUG DOSAGE *GUIDE*

For Cardiac Arrest	*Instructions*	*Adults*	*Children*	*Infants*
Epinephrine HCl 1:1000	Dilute to 1:10,000 by adding 9 cc. normal saline to 1 cc. 1:1,000 Epinephrine.	3-5 cc.	1-2 cc.	1 cc.
Calcium Chloride 10%	Inject undiluted or may dilute amounts listed up to 10 cc. with normal saline.	3-5 cc.	2-3 cc.	2 cc.
Atropine Sulfate (1/150 gr. per cc.)	Inject undiluted or may dilute amounts listed up to 10 cc. with normal saline.	3 cc. (1/50 gr.)	1½ cc. (1/100 gr.)	½ cc. (1/300 gr.)
Levophed Bitartrate (100 mcg. base per cc.)	Inject undiluted.	½ to ¾ cc.	½ cc.	¼ cc.
Isuprel 1:5000 (0.2 mg./cc.)	Dilute to 1:50,000 by adding 9 cc. normal saline to 1 cc. 1:5000 solution.	1 cc.	½ cc.	¼ cc.
For Ventricular Fibrillation				
Procaine 1%	For intracardiac injection in dosages listed or use topically on heart surface.	5-10 cc.	3-5 cc.	1-2 cc.

All Above Dosages May Be Injected Repeatedly as Indicated

masks, made in Denmark, make possible immediate application of positive pressure using room air, and oxygen may be connected to the apparatus when available. We feel this is valuable and important equipment for emergencies.

DRUGS

A limited selection of drugs for treatment of cardiac arrest must be included in every cardiac resuscitation set-up. Epinephrine HCl, calcium chloride, and atrophine sulfate are the three basic drugs which have stood the test of time. Levophed bitartrate (l-norepinephrine) and Isuprel® are valuable additions. Inclusion of a vast array of drugs is unnecessary and confusing. Drugs to be available on the cardiac resuscitation tray are set out below, utilizing the ordinarily available strengths. Two or three ampuls or vials of each drug should be included to allow for breakage, spillage, etc. Normal saline must be available for dilution.

Other drugs (Hydro-Cortisone, the vasopressors, caffeine, quinidine, Cedilanid®, etc.) are useful, particularly after the heart beat has returned.

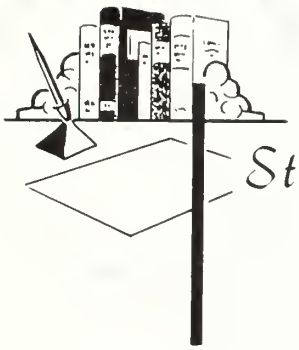
During the tense and dramatic period of cardiac resuscitation, the surgeon, who may seldom use these drugs, may have difficulty determining the desired dosages. Indeed, a review of the literature will reveal that there is little agreement as to exact dosage. Therefore, a dosage card should be part of the cardiac resuscitation drug set-up to serve as a guide in determining the amounts to be injected. It is desirable to inject a sufficient amount of a drug to obtain the desired effects, and avoid the harmful undesirable effects of the medication. The response and failure of response of the heart and the recurrence of cardiac arrest after some encouraging response to resuscitation efforts must be considered in determining dosages in each individual case, and repeated injections are often indicated. The card illustrated below is recommended as a *guide* to be included in every cardiac resuscitation drug set-up.

DEFIBRILLATORS, PACEMAKERS, ETC.

There is no satisfactory substitute for electro-shock in the treatment of ventricular fibrillation. Therefore, a ventricular defibrillator is a *must* in all cardiac resuscitation set-ups. The defibrillator electrodes are included in the emergency instrument set-up—sterile and ready for use. All apparatus must be checked at frequent intervals to make certain it is in working order. Extra fuses must be on hand unless the defibrillator has a circuit breaker.

Cardiac pacemakers are rapidly gaining acceptance. This and other apparatus are discussed under the section on "Special Apparatus."

(Part II of Dr. Tocker's article will be in the November issue of the JOURNAL.)



Student
THESIS

Bone Disease—Osteoporosis

ARTHUR HALLIDAY, M.D., *San Francisco*

Definition

Osteoporosis is a disease of bone in which, through a metabolic defect, there is demineralization of the bony skeleton. Although clinically and radiologically attention is usually focused on the spine and long bones of the lower extremity, it is now generally agreed that osteoporosis is, indeed, a systemic disease of living bone tissue.[21, 28] In this disease the protein matrix of the bone is progressively depleted. While the matrix that remains is calcified normally, the porotic bone becomes structurally weak and likely to fail under load.

Classification

The emphasis in this paper is on the so-called senile and post-menopausal osteoporosis (differentiation between the two being difficult in many cases). The various conditions listed in this classification—modified after Albright and Reifenstein[4]—will be mentioned briefly in the section on etiology.

Etiology

Although the etiology of osteoporosis is not completely understood, it is now generally agreed that the primary defect is a deficiency of bone matrix which, in turn, is due to a deficiency of osteoblastic activity.[4, 27] According to Albright and Reifenstein there are two major processes in bone formation: a biologic step of bone matrix production and a physical-chemical step of mineralization of the newly formed matrix. A defect in either of these two processes may give rise to a specific group of bone disorders. If mineralization of the matrix is somehow impeded the melacic group (osteomalacia) of disorders develops. Likewise, if the biologic step is blocked and there is a failure to produce or maintain an adequate amount of calcifiable matrix, the porotic group (osteoporosis) results.[4] Presumably, in osteoporosis the processes of mineralization are normal, since the bone that is present contains a normal amount of calcium

CLASSIFICATION OF OSTEOPOROSIS

I. Defect in Osteoblastic Activity.
   A. Osteoporosis associated with disuse atrophy.
   B. Estrogen deficiency.
      1. Post-menopausal osteoporosis.
      2. Congenital hypoestrinism (ovarian agenesis).
   C. Congenital osteoblastic defect (osteogenesis imperfecta).
II. Defect in Bone Matrix.
   A. Androgen deficiency.
      1. Eunuchoidism.
      2. Senile osteoporosis.
   B. Protein deficiency.
      1. Malnutrition.
      2. Hypovitaminosis C.
      3. Cushing's Syndrome.
      4. Cortisone and ACTH therapy.
      5. Acromegaly.
      6. Thyrotoxicosis.
      7. Diabetes.
III. Idiopathic Osteoporosis.

This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be the best by the faculty at the school. Dr. Halliday is now at the University of California Hospital, San Francisco, California.

salts. Bone resorption exceeds bone formation because insufficient or qualitatively inadequate osteoid is being produced. During the process of demineralization bone matrix is so changed that it is no longer calcifiable, and the old osteoid must be removed and new material laid down before mineralization can again take place. The multinucleated osteoclast is generally believed to effect the removal of old osteoid, though the osteoblasts may participate in this function.[13] Mineral changes in bone are relatively passive processes, secondary to the metabolism and laying down of new, calcifiable matrix.[27]

Parathyroid activity, which governs chiefly the physical-chemical phase of bone metabolism, is normal is osteoporosis. Thus, our attention is directed toward the biologic or cellular phase of bone metabolism and to the factors which are known to participate in the production and maintenance of bone matrix.

Bone Matrix Production

1) *Congenital defects.* In osteogenesis imperfecta there appears to be a generalized disorder of mesenchymal tissue, and although the osteoblasts are present in normal numbers they form deficient amounts of extracellular substance and hence produce too little bone matrix.[16]

2) *Stress and strain.* Probably the most important stimulus to osteoblastic activity is stress on the skeletal system. Immobilization of all or any part of the skeleton immediately results in a decrease in osteoblastic activity. Since bone resorption continues at a normal rate, the result is negative calcium balance, and if the process is allowed to continue for extended periods of time, ultimately osteoporosis results. Thus, osteoporotic bone is demonstrable in an extremity immobilized by a cast, in paralyzed extremities, and in patients who have been on prolonged bed rest for any cause. Diminished physical activity and loss of muscle strength are undoubtedly important contributing factors in the development of osteoporosis in the elderly.

3) *Nutrition.* The role of dietary deficiencies in senile osteoporosis has not yet been established. There seem to be two possible answers.[4]

(a) Absorption of increased amounts of calcium and phosphorus in the diet may slow down the process of bone resorption. This theory would seemingly be supported by the observation that calcium and phosphorus-rich diets may be beneficial to patients with osteoporosis and also that such diets inhibit the decalcification seen in hyperparathyroidism. Although it has been stated that osteoporosis occurs more frequently among food fadists on low calcium diets,[25] others doubt the importance of calcium and phosphorus in the diet in the production of the disease.[1]

(b) A deficiency of dietary protein may result in a difficulty in the formation of new osteoid by the osteoblasts simply on the basis of a lack of building materials. It is possible that some of the bone defects attributed to lack of dietary calcium and phosphorus are actually due to protein starvation.

4) *Vitamins.* It is known that activity of the osteoblasts is not normal in scurvy, with resulting defects in the formation of bone matrix, dentin, cartilage, and all non-epithelial cement substances.[8] Although frank scurvy is certainly rare, varying degrees of hypovitaminosis C theoretically could be a factor contributing to the development of osteoporosis. It is generally agreed that lack of vitamin D is not a factor in the production of osteoporosis.[19]

5) *Hormones.*

(a) Estrogens are a powerful stimulus to calcium and phosphorous retention in post-menopausal and senile osteoporosis.[4, 7] Since 99 per cent of the body's calcium is in the bones and teeth it is assumed that the calcium retained subsequent to estrogen therapy is incorporated into new bone, and symptomatic improvement generally parallels calcium retention.[20]

(b) Although androgens have a profound influence on the formation (anabolism) of general body protein, it is difficult to estimate the direct effect of testosterone on the production of bone matrix. Deficiency of the male sex hormone is undoubtedly the etiologic agent in the osteoporosis of the eunuchoid state, and is probably very important in the development of senile osteoporosis.

(c) Osteoporosis is observed in states of hypercorticism, whether endogenous (Cushing's Syndrome) or exogenous. Cortisone promotes protein catabolism and may further depress bone matrix formation by a direct inhibition of osteoblasts.[1]

6) *Chronic disease states.* In uncontrolled diabetes[4] and in hyperthyroidism[13] osteoporosis may occur as the protein materials essential for bone matrix production are deaminated and degraded to serve as sources of energy. This osteoporotic effect is inhibited or reversed by the administration of estrogens and androgens, and it has been suggested that senile osteoporosis may be produced by the normal but unopposed output of adrenal steroids. Osteoporosis is a common complication of acromegaly. It has been suggested that this may be due to mild hyperadrenocorticism or hyperthyroidism, or to overproduction of growth hormone.

Lastly, there are some cases of osteoporosis in which no likely etiologic agent can be found. It is seen occasionally in men following minor trauma and in women following an uncomplicated pregnancy.[8] There is some evidence that the height of the serum protein level may be a factor in bone formation and in osteoporosis. In the last two mentioned situations

the serum protein concentrations have been found to be low in a surprising number of cases.

Another possible contributing factor in the development of osteoporosis is a diminished blood supply to the skeletal system secondary to atherosclerosis, although, there is no positive evidence for this at the present time. A defect in the absorption of nitrogenous products in the gastrointestinal tract has likewise been offered as an etiology in osteoporosis, and it has been demonstrated that total gastrectomy in a dog will result in osteoporosis,[4] but application of this to humans is difficult.

Osteoporosis in the aged may be considered as atrophy of the bones. Just how much of this is due to underfunction of the steroid producing glands and how much is due to old age *per se*, are unanswered questions. Most of the osteoporosis that is seen is probably secondary to disuse, undernutrition, and a deficiency of sex hormones.

Incidence

It has been stated the osteoporosis is the most widespread of the metabolic bone diseases,[10] and that post-menopausal osteoporosis is the commonest form of osteoporosis. Between the ages of 40 and 60, four times as many women as men have osteoporosis. While the severity of osteoporosis is definitely worse in women, the condition as it occurs in men is exactly analogous. Although osteoporosis is considered by some to be merely a complication of growing old, this is not so as it is not seen universally in the aged.

Of 660 consecutive patients presenting with pathologic fractures Ghormley, Sutherland, and Pollack reported that the diagnosis was in 278 metastatic malignancy, in 106 primary malignancy, in 269 benign lesions, and in 92 the diagnosis was senile osteoporosis. In a survey of 136 elderly patients without symptoms referable to the skeletal system, 29 per cent of the women and 11 per cent of the men were found to have one or more compression fractures of the vertebrae attributable to osteoporosis.[14] Thus, it is a condition which must be kept in mind in dealing with all post-menopausal or elderly patients whether symptoms exist or not.

Morbid Anatomy

Grossly, osteoporotic bone differs from normal bone only in that there is less of it, a point which can be established with certainty only by comparing osteoporotic bone sections with similar biopsy or autopsy specimens from normal bone. The surfaces of osteoporotic bone trabeculae resemble those of normal bone in showing osteoblasts at some surfaces and osteoclasts at others. It is stated that in situations where direct stimulus to osteoblasts is lacking, as may be the case in estrogen deficiency, a decreased number of osteoblasts is demonstrable. In osteoporotic bone there are no areas of decalcified matrix in the regions of osteoclastic activity, and there is not an increased amount of uncalcified matrix around the osteoblasts.[19] The trabeculae in osteoporotic bone are thinner and fewer than in normal bone, this being best demonstrated by low power examination of the bone sections.

Symptoms

There is disagreement as to whether osteoporosis *per se* can produce symptoms. There is often much discrepancy between the symptoms and radiologic evidence of bone disease. For instance, severe osteoporosis with multiple fractures may be merely an incidental radiologic finding, and conversely, severe osteoporosis may be present when radiologic evidence is minimal.

The characteristic symptom with osteoporosis is back pain, more often of lower thoracic and upper lumbar regions. The pain may be acute or gradually progressive, and may be localized or diffuse. The classical description is that, after several years of a heavy or dragging feeling in the back, some mild trauma precipitates acute back pain. The pain may radiate to the abdomen, legs, or upward along the spine, and is aggravated by physical exertion. Other conditions which should alert the physician to the possibility of metabolic bone disease are pathologic fractures, especially of the neck of the femur, and renal calculi.

It should be noted that much skeletal deformity can occur in an asymptomatic patient. This is very important and will be discussed later.

Diagnosis

Though a definitive diagnosis of osteoporosis can be made only by histologic studies, a reasonably certain diagnosis can be made clinically from history and physical signs as discussed above in conjunction with X-ray and blood studies.

It is estimated that from 10 to 60 per cent of the bone calcium must be depleted before it is detectable radiologically. The radiologic picture which is usually present is bone which appears less dense than normal with bone margins by contrast appearing more prominent that normal. Quite often the so-called "codfish" vertebrae are present, biconcave vertebrae which usually appear wedge-shape with the narrow edge anteriorly. Radiolucency is often present in the pelvis, ribs, and femurs, but rarely in the skull which helps to differentiate osteoporosis from other osteolytic lesions. The lamina dura about the teeth is normal, which is a further differentiating point. Again, it should be remembered that no deformity need be present.

Since osteoporosis is a disease of tissue metabolism rather than of calcium and prosphorus metabolism, the serum levels of calcium and phosphorus are normal. It should be mentioned that, whereas most investigators have reported the concentration of serum phosphorus to be normal in osteoporosis, Albright has noted a slight but significant elevation in the level of serum phosphorus which falls with successive treatment. Also, elevated serum phosphorus levels have been reported in acromegalic patients, in post-menopausal and castrate persons, and in preadolescent children.

Although the body is in negative calcium balance during the development of osteoporosis, the rate at which calcium is being lost from the body is exceedingly slow and increased amounts of calcium in the urine are not demonstrable. In persons with osteoporosis the serum alkaline phosphatase is normal, not low as one might first expect. Alkaline phosphatase is probably manufactured by osteoblasts and functions by increasing the local concentration of inorganic phosphorus by its action on organic phosphates. This increased concentration of phosphorus permits immediate precipitation of bone salt into the newly formed matrix. The number of osteoblasts present is an index of the level of bone production (in the absence of liver disease), and the concentration of alkaline phosphatase in the blood is a rough index of osteoblastic activity. The fact that serum alkaline phosphatase is normal in persons with osteoporosis again suggests that the decrease in osteoblastic activity is exceedingly small relative to continued bone production. An occasional borderline or high value for the serum alkaline phosphatase may reflect osteoblastic repair of current fractures. As was stated earlier, serum protein levels may be normal or slightly low, and it has been postulated that the height of the serum proteins may be a factor in the process of bone formation, and in the development of osteoporosis.

Recently a calcium infusion test has been described[10] which, although it does not distinguish osteoporosis from all other osteolytic lesions, may be useful as an objective measurement of improvement during therapy. The procedure consists of feeding the patient 150 mgm calcium daily for three days prior to, and three days following, the day of the test. That day the patient is given 50 cc of 10 per cent calcium gluconate (446 mgm of calcium) in 500 cc of 5 per cent glucose water intravenously during a four hour period. The patient's 24-hour urinary calcium is determined on the day prior to test day, test day, and the day following test day. Persons with osteoporosis will have a decreased utilization of calcium compared to normal persons, and this utilization should increase with hormonal treatment.

The differential diagnosis of osteoporosis should include osteomalacia, metastatic and primary carcinoma, multiple myeloma, hyperparathyroidism, hyperthyroidism, Cushing's Syndrome, acromegaly, osteogenesis imperfecta, and panhypopituitarism. Most of these conditions are easily ruled out, the major difficulty being to differentiate osteoporosis from primary or secondary malignancy.

Treatment

The osteoporosis associated with conditions such as immobilization, congenital hypoestrinism, malnutrition, hypovitaminosis C, Cushing's Syndrome, thyrotoxicosis, diabetes, and cortisone or ACTH therapy should respond as the respective defect is corrected. Senile and post-menopausal osteoporosis pose a much more difficult problem. Since there are undoubtedly multiple contributing factors in these conditions therapy must be directed along several lines, and the first of these is nutrition. It is well known that the diets of elderly persons are often inadequate. Detailed studies have confirmed the fact that protein consumption especially tends to be deficient, and that the recommended one gram of protein per day per kilogram of body weight often is not consumed.[5] In persons with osteoporosis a high protein diet alone will result in the retention of significant quantities of potassium, phosphorus, and nitrogen. Such a regimen does not result in significant retention of calcium, indicating that there may be a specific error in protein metabolism in persons with osteoporosis, but such a defect has not been demonstrated to date. Thus, while a high protein diet is necessary, it is not sufficient. An interesting phenomenon in regard to dietary protein, serum protein levels, and calcium metabolism is that intravenous human albumin will result in positive calcium balance in persons with osteoporosis. The calcium retained is deposited in bone and persists there after the albumin has been degraded. The same amount of albumin administered orally produces no calcium retention.

So far as is known at the present time senile osteopososis or the osteoporosis of post-menopausal women is not caused by inadequate absorption of calcium or phosphorus via the gastrointestinal tract, and high calcium diets are not indicated.[4] Vitamin D is often prescribed for osteoporosis in the belief that increasing the calcium absorption in the GI tract will aid in the formation of new bone. However, since vitamin D does not stimulate the osteoblasts to form new matrix into which the calcium could be deposited, the only result is increased amounts of calcium being lost in the urine, increasing the danger of renal stones.

A second important part of the treatment and prevention of osteoporosis is to keep the patient active. One of the most important stimuli to osteoblastic production of bone matrix is the stress and strain to

the skeletal system produced by ordinary movement, and the instant such a stimulus is removed the production of bone matrix begins to diminish. It has been stated that the reason people toss and turn during that night is so that the skeleton will still be there in the morning. Since the predominant symptom of decreased skeletal mass is pain and the major danger to persons with osteoporosis is a fracture, various means to immobilize the patient are often instituted, either to ease the pain caused by movement or to protect the patient from a fracture. Nothing could be more harmful to the patient, since immobilization itself aggravates the underlying pathology and encourages complications. "The aim of *all* therapy should be rapid and complete mobilization." This is especially true in the person who has just sustained a fracture. It should be emphasized that much deformity can be present in an asymptomatic patient, and that the condition is often less serious than it appears on the X-ray. Cast immobilization of a person with collapsed vertebrae to protect the spinal cord is not indicated since this complication is rare. If the patient requires bed rest for a time he should be encouraged to move about in bed in every way possible, and he should be hurried through the process of rehabilitation until he is ambulatory. He should be encouraged continually to expand both his physical and intellectual activities. During this process it is essential that pain be kept to a minimum so that it is never a reason for prolonging immobilization, and it is important that opiates be avoided whenever possible. It is a curious fact that collapsed vertebrae in the absence of neurologic deficit are apparently not a serious handicap to activity. In effecting rehabilitation of persons with osteoporosis a very important tool is psychotherapy, since a gradual loss in the will to be active is a common feature of senility.

The third major sphere in the treatment of osteoporosis is the use of hormones. It has been repeatedly demonstrated that the benefit obtained from both estrogens and androgens is greater that from either used singly, both in men and women, and it is customary to use them concomitantly for all persons with senile or post-menopausal osteoporosis. Estrogens produce a greater effect on calcium retention than androgens, but the latter are a stronger stimulus to protein anabolism and to bone matrix formation.

Natural and synthetic estrogens are equally effective, and any of the following dosage schedules will give approximately the same results:

(1) Diethylstilbesterol, 0.5 to 1.0 mgm orally, per day. If stilbesterol causes nausea (even when taken at bedtime), premarin, 1.25 to 2.5 mgm per day may be substituted.

(2) Estrone sulfate, 2.5 to 3.75 mgm orally, per day.

(3) Estradiol benzoate, 1.66 to 3.32 mgm IM, once per week.

(4) Estradiol dipropionate, 5 mgm IM, once per week.

Apparently no benefit is obtained by increasing these doses. The above schedules usually permit sufficient build-up of endometrium so that bleeding will occur when the estrin is withdrawn. The withdrawal should be for from seven to ten days every four to six weeks in order to avoid excessive uterine bleeding.[4] The patient is requested to keep a chart of her periods and any irregular bleeding should be investigated. Periodic vaginal smears should probably be taken because of the possibility of a carcinogenic stimulus of the estrogens.

In conjunction with the above, androgens may be administered by any of the following schedules:

(1) Methyltestosterone, 10 to 20 mgm orally, per day.

(2) Testosterone propionate, 10 to 25 mgm IM, weekly.

(3) Testosterone, two 75 mgm pellets implanted subcutaneously ever three to four weeks.

In men the androgens are continued indefinitely and the estrogens until side effects (mastodynia, etc.) become disturbing. Doses exceeding 300 mgm of androgen per month risk virilization of women, and increase the problem of salt retention in both sexes.

Evaluation of therapy for osteoporosis is exceedingly difficult, and at best, can be little more than a clinical impression. Since osteoporosis is usually evident radiologically when therapy is instituted it might be hoped that improvement in the condition could be documented on serial examination by X-rays. This is rarely possible, however, since the rate of increased bone formation during therapy is very slow. For a skeleton to lose (or regain) 30 per cent of its calcium (at an arbitrary rate of 100 mgm per day) would take approximately nine years. Relief of symptoms, when it does occur, is difficult to equate with the therapeutic regimen. This should not be a deterrent in the treatment of persons as vigorously and intelligently as is possible in the light of available fact and theory, avoiding measures of potential harm but likewise avoiding the tragedy of doing nothing.

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New Blue Shield Plan

California's senior citizens are currently being offered the opportunity to enroll in a health plan specifically designed for them by California Physicians' Service, the Blue Shield Plan serving the entire state.

The new plan, called "MD-Plan 65," confines coverage to doctors' services, such as surgery and physician visits at the hospital, home or office. Limited x-ray and laboratory benefits are also provided. The plan is being offered on an experimental basis to all Californians 65 years of age and older during the month of June.

The special plan is the result of action taken by the California Medical Association last February, calling for ". . . California Physicians' Service to proceed with all speed to develop and actively sell voluntary health plans to further expedite the health care of the aging."

Physicians of the California Medical Association have approved a special lower schedule of fees in order to make the needed benefits to senior citizens available at a reasonable cost. The California Blue Shield Plan's payment (based on these fees), plus a nominal co-payment by the member, will be accepted as full payment for contract benefits when a single member's income is $3,000 a year, or $4,500 a year for a married couple. The full payment feature applies to services rendered by the 14,000 California Blue Shield physician members only.

Monthly rates for the "MD-Plan 65" are $6.90 a month for a man, $7.90 a month for a woman.

In line with the new plan announced by California Physicians' Service, the National Association of Blue Shield Plans reports that almost all of the 65 Blue Shield Plans located in the United States are taking steps to provide programs for senior citizens. Twenty-one Blue Shield Plans, in addition to California Physician's Service, have already announced that they are enrolling persons past 65 under special contracts designed for the aged.

Committee
REPORTS

Tuberculosis in Kansas

Part IV—Administrative Procedures Dealing With Tuberculosis in Kansas

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Since there are several agencies with differing responsibilities and administrative procedures involved in the control of tuberculosis in the state of Kansas, it is believed that an outline of the procedures used and the services offered by these agencies will be helpful to the physician in caring for his patient with tuberculosis. The two agencies with the primary responsibility for tuberculosis control are the State Board of Health and the State Board of Social Welfare. The University of Kansas Medical Center and the Veterans Administration Hospitals also offer treatment facilities and participate in tuberculosis control measures. The State Vocational Rehabilitation Service provides consultation and vocational training. The Kansas Tuberculosis and Health Association participates in all areas of tuberculosis control as a voluntary health organization.

The primary responsibility for case finding and maintaining a tuberculosis case register rests with the State Board of Health. To carry out these responsibilities, the following facilities and procedures have been developed.

This is the last article in a series of four by the Committee on Control of Tuberculosis.

I. Mobile X-Ray Survey

Two 70 mm. photofluorographic units are used by the State Board of Health in its mobile x-ray surveys. The fourth state-wide survey is currently in progress, and upon its completion future surveys will be conducted with concentration on areas of high tuberculosis incidence. The current policy is to x-ray adults over the age of 20, with particular emphasis of older-

The Kansas Medical Society Committee on Control of Tuberculosis during this past year has prepared a series of four articles intended to orient the practicing physician with the current status of the diagnosis, treatment, and follow-up of patients with tuberculosis. Doctor Martin FitzPatrick served as the editor of these four articles. They are appeared in serial form in the *Journal* following which they will be bound and made available in booklet form to each member of the Society.

age groups. Those under 20 years of age will be x-rayed only upon written request by their private physician. The films taken by the Mobile X-ray Units are processed and interpreted by the State Board of Health. Negative interpretations are mailed directly to the individual x-rayed, while in a case of suspected pulmonary or cardiac pathology, notification is made to the physician indicated by each participant. A clinical evaluation form is sent with the notification to the family physician requesting clinical information on the suspected individual. The completed reports and miniature films are then filed in Topeka and are available for future reference and use by any physician in the state. These films may be obtained for comparison with other films by letter request to the State Board of Health with the understanding they will be returned.

II. Tuberculin Testing Surveys

Local medical societies are encouraged by the State Board of Health to develop tuberculin testing programs in their community. Consultation in setting up testing programs and the test material (purified protein derivative of tuberculin, intermediate strength, in packages of ten tests, or 50 test size) is available from the Board of Health.

III. Laboratory Facilities

Facilities of the State Board of Health Laboratory are available for doing smears, cultures, sensitivity tests, and animal inoculation of secretions for acid-fast bacilli. The results of these tests are reported to the physician submitting the specimen, and to the Division of Preventable Diseases, State Board of Health.

IV. Contact Followup

A list of contacts of the patient with active tuberculosis is sought by the State Board of Health at the time of diagnosis or admission to hospital, and is forwarded to the contact's physician and the local Health Department to aid in the evaluation of these tuberculosis suspects. It is recommended that contact examination consist of tuberculin skin test and chest x-ray.

V. Case Register

The second major function of the State Board of Health, in the control of tuberculosis, is the maintenance of a case register. All tuberculous individuals reported, as required by state law, are listed in this register which is kept up-to-date by semi-annual reports from physicians and hospitals treating tuberculosis patients. Register cards of active cases who have been treated to the inactive or arrested state of tuberculosis, and maintain this status for one year, are then placed in an inactive file. There they are available should the disease again become active. Clinical evaluation forms of suspected cases turned up by the photofluorographic unit are routinely cleared through the register so as to maintain the register on a current status.

The maintenance of an up-to-date case register is of considerable importance in the control of tuberculosis, and is completely dependent upon the active participation of the private physician. Forms for the reporting of newly-found cases of tuberculosis, and for followup examination of known TB cases, are available from the State Board of Health, the local Health departments, the county health officers, or the county or district health nurse.

VI. Recalcitrant Patient Control

Recent legislation has empowered the state and local health officers to require medical examination of individuals suspected of having tuberculosis and to require isolation of individuals known to have active, communicable tuberculosis. Upon refusal of examination or breach of quarantine, the county or state health officer may initiate proceedings to obtain a court order to force compliance. Under the terms of this legislation, an individual in violation of quarantine may be confined to one of the state tuberculosis hospitals under court order until he no longer represents a public health hazard.

VII. Miscellaneous Facilities

In addition to case finding and case register services, the State Board of Health also offers consultation service which consists of chest x-ray interpretation and advice concerning therapeutic procedures. Educational material, including pamphlets and motion pictures, are available from the State Board of Health upon request from physicians, nurses, welfare agencies, school authorities, and volunteer health organizations.

STATE DEPARTMENT OF SOCIAL WELFARE

The State Department of Social Welfare, through its Division of Institutional Management, maintains and operates two institutions for the diagnosis and treatment of tuberculosis. These are the State Sanatorium for Tuberculosis at Norton, and the Southeast Kansas Tuberculosis Hospital at Chanute. The hospital at Chanute serves the following counties in southeast Kansas: Allen, Anderson, Bourbon, Chautauqua, Cherokee, Coffey, Crawford, Elk, Greenwood, Labette, Linn, Montgomery, Neosho, Wilson, and Woodson. The remaining counties in the state are served by the sanatorium at Norton. The following are the admission procedures dealing with these institutions:

A. Inpatient Admission. Administrative procedures are outlined by the General Statutes of Kansas, Sec. 76-1510, 76-1510a, and Sec. 65-116e. Briefly they are as follows:

1. Routine Application. Formal application is prepared by the physician and the patient, signed by both, and forwarded through the county welfare agency to the hospital. The county welfare agency determines residence and obtains social information on the patient and his family which is forwarded with the application, or follows the application, to the hospital. The patient, physician, and local health department are then sent the date and other information relating to the patient's admission to the hospital. The application form, known as IM-3105, may be obtained from the county welfare department, the local health department, the Division of Institutional Management of the State Department of Social Welfare, or the tuberculosis hospitals at Norton, or Chanute. Admission to the tuberculosis department at the University of Kansas Medical Center may be accomplished by telephoning or writing the chairman of the tuberculosis section at the University.

Admission procedures at the University of Kansas Medical Center and the Veterans Administration Hospitals are essentially the same as for nontuberculosis patients. Arrangements for admission may be made by telephone or letter contact with the Admissions Office or the Chief of the Pulmonary Disease Section of the Medical Center, and Form 10-P-10 should be completed and forwarded to the appropriate Veterans Administration Hospital for admission to the veterans' facility. The local service representative can supply forms and necessary information for Veterans Administration Hospital admission.

2. Emergency Admission. If the admission is determined to be an emergency, either on medical or public health grounds by the private physician, the procedures are as follows: The physician or local health department makes specific arrangements with the tuberculosis hospital by telephone, and the formal application is sent in with, or following, the patient to prevent delay in admission.

3. Admission by Court Order. In an instance of violation of quarantine, a court order may be obtained by the health officer and forwarded with the formal application for admission to the hospital. Upon receipt of court order, the patient will be retained in the institution, by restraint if necessary, until his disease is brought sufficiently under control where it no longer represents a public health hazard.

B. Admission to Outpatient Clinics. Appointments are made in the Outpatient Clinics for diagnostic evaluation of tuberculosis suspects, or followup of known tuberculosis patients, on request from private physicians or local health officers. No formal application is requested, but previous medical records and x-rays are usually solicited.

The tuberculosis hospitals attempt to follow patients discharged from the hospital and those seen in the Outpatient Clinics in conjunction with the private physician. To do this, summaries of hospitalization and outpatient evaluation are sent to the referring physician and the state or local health departments. Chest x-rays received from private physicians or local health departments are interpreted by the tuberculosis hospital physicians and reported to the private physician, local health department, and State Board of Health.

STATE VOCATIONAL REHABILITATION SERVICE

Vocational Rehabilitation referrals are usually made by the tuberculosis hospital if the patient is in need of this service and is a suitable candidate for vocational rehabilitation. However, if the patient has not been hospitalized, or if the private physician believes vocational rehabilitation is indicated, he may make the referral by contacting the district vocational rehabilitation office nearest his community.

County tuberculosis clinics are held in Kansas City, Wichita, and Topeka.

Summary

The control of tuberculosis requires the close cooperation of the private physician and the governmental agencies mentioned above. These briefly outlined administrative procedures are necessary to maintain adequate communication, which is so important in dealing with this chronic public health problem. The forms used for case reporting, collection of followup information, contact examination, obtaining clinical data on patients with abnormal PF Unit films, and for admission to a tuberculosis hospital, have been written so as to take as little as possible of the physician's time. It is hoped that this outline of services available, and the administrative procedures needed to obtain these services, will be helpful to the physician in private practice as he works with the patient with tuberculosis.

Have You Sent Your

Gift To The

A. M. E. F.

Maternal Mortality

The patient was a gravida III, para II who died in a well-equipped, well-staffed general hospital in a large city with a certificate diagnosis of intracranial hemorrhage due to thromboembolus of the left postmeningeal artery due to choriocarcinoma. An autopsy was performed.

The patient's obstetrical history was as follows: In 1950 she was delivered of a full-term five pound 12 ounce infant after ten hours of labor and a normal postpartum course ensued. In 1952 at approximately three months of gestation, a curettage was performed because of a hydatidiform mole. Subsequent A-Z tests were negative and a normal menstrual cycle was established. In 1954 she was first seen by the attending physician for her third pregnancy. She delivered normally at term a six pound, one and one half ounce infant after a four and a half hours labor. Her postpartum course was uneventful and she appeared normal at her six weeks examination; no menses having occurred at that time.

She was seen for her regular six-month checkup in 1956. She had a history of consistent spotting since her last normal period which had been three months before. On pelvic examination the uterus was found to be one and one half times normal size. The right adnexa was normal and the left ovary was 5 cm. in diameter and cystic. A curettage was performed, the pathology report giving a diagnosis of secretory endometrium with decidual reaction. Colpotomy was performed, and left oophorectomy and partial right oophorectomy were carred out. The pathologist reported the tissues as a thecaluteal cyst of the left ovary, and follicle cysts of the right and left ovaries. She bled for two weeks postoperatively, but stopped by the third week. A frog test at this time was reported as negative.

Five weeks later the patient reported for examination, having spotted for three weeks previously. The uterus seemed slightly enlarged. She was given 50,000 units of aqueous estrogen intramuscularly and rechecked in one week at which time the uterus was four times normal size. Another curettage was performed and the tissue was reported as early secretory endometrium and squamous metaplasia of the cervix.

Under close observation the patient continued to spot and the uterus continued to enlarge. A hysterectomy was performed four weeks later. A preoperative specimen for a quantitative A-Z test was lost but postoperatively the test was negative in 1:100 and 1:1000 dilutions. A placental polyp was found in the fundus of the uterus. Two weeks later an X-ray of the chest disclosed a metastatic process; embryonic in type.

Two months later the patient suddenly experienced syncope. No positive neurologic findings were noted. A Friedman test was positive undiluted and in 1:10 dilution. The patient was seen by various consultants. A glucose tolerance test showed a diabetic curve. Arteriograms, electroencephalograms, and complete neurologic studies were performed. A diagnosis of subarachnoid hemorrhage was made. The diagnosis of cerebral metastasis was discarded because of the negative pathology at hysterectomy. She recovered and was discharged, but was readmitted eight weeks later because of syncope. She died in forty-eight hours after readmittance.

Autopsy diagnosis included choriocarcinoma of the lungs and right cerebral artery with encephalomalacia of the right cerebral hemisphere.

Committee Opinion

The committee felt that this represented a bizarre and unfortunate chain of circumstances in which the course and results were beyond the control of the physician or patient. The character of the condition necessitated the assignment as maternal death, but its displacement from the obstetric event warranted its being considered non-obstetric.

Classification

MATERNAL DEATH, NON-OBSTETRIC.

One of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas.

Functioning Parathyroid Adenoma

Edited by JOHN WARKENTIN, M.D.

Dr. Boley (Moderator): Our patient today had a tumor which is generally considered rather uncommon but which can have serious consequences for the patient.

Mr. Ross (Medical Student): The patient is a 49-year-old white woman who was first admitted to the hospital in September 1958, upon referral by her family physician because of hypertension and kidney disease. She had had severe continuous occipital headaches for seven or eight days, dyspnea on exertion and swelling of the ankles for several years, and failing vision for one year.

Admission Examination

Physical examination on admission revealed a blood pressure of 250 systolic and 150 diastolic. Funduscopic examination revealed grade III hypertensive changes with flame-shaped hemorrhages in the retina. The heart was enlarged to the left of the mid-clavicular line, but the pulse was regular at 84 per minute and there were no thrills or murmurs. The liver was palpable four fingerbreadths below the right costal margin and was firm but non-tender. The remainder of the physical examination was within normal limits.

Significant laboratory findings included a serum calcium ranging from 6.8 to 7.3 mEq/liter and a serum phosphorus ranging from 0.8 to 1.1 mEq/liter. The 24 hour urine excretion of calcium was 6.9 mEq. and of phosphorus 46 mEq. in a total volume of 1700 ml. of urine. The renal tubular reabsorption of phosphorus on two different occasions was calculated to be 43.6 per cent and 40.5 per cent, the normal range being 80-90 per cent. The serum alkaline and acid phosphatases were normal. The blood urea nitrogen was 22 mg. per cent and the serum creatinine 1.9 mg. per cent. X-ray film revealed calcification in the right kidney and two areas of calcification in the region of the left ureter. Since the x-ray findings indicated the presence of two calculi in the left ureter, a left ureterolithotomy was performed. It was noted at operation that no urine drained from the left ureter. The postoperative course was satisfactory and she was discharged to return at a later date. The clinical diagnosis was probable hyperparathyroidism with secondary nephrocalcinosis.

Readmittance

She was readmitted five days ago. In the interval since her previous admission she felt well and was free of headaches, but was troubled by constipation which was not corrected by laxatives. The physical examination and laboratory findings were essentially unchanged.

Dr. Boley: Will you tell us what has been done for the patient?

Mr. Ross: Three days ago she underwent a bilateral exploration of the neck in an attempt to find a parathyroid tumor. When no tumor was found in the neck, the mediastinum was explored and a large mass which was found in its posterior portion was excised.

Dr. Boley: How does this tumor produce a blood pressure of 250/150?

Mr. Ross: The hypertension is secondary to nephrocalcinosis.

Dr. Boley: May we see the x-ray films please?

Dr. Gantioqui: The intravenous pyelogram done during the first admission shows normal excretion in the right kidney, with a calcific density in its upper pole. There is absence of excretion in the left kidney and two calcific densities are seen in the left

Cancer teaching activities at the University of Kansas Medical Center are aided by grants from the National Cancer Institute, U. S. Public Health Service and from the Kansas Division of the American Cancer Society.

pelvic region. Retrograde pyelogram shows that these densities are calculi in the ureter. A chest x-ray taken before the more recent operation shows a normal chest. There is no widening of the mediastinum or evidence of tumor. The postoperative portable chest film shows widening of the upper mediastinum and poor aeration of the lung fields, possibly due to atelectasis following the operation.

Dr. Boley: May we hear from the pathologist?

Pathologist's Report

Dr. Mantz: The gross specimen consists of a pear-shaped mass which measures seven cm. in greatest diameter and weighs 30 grams. It has a smooth, obviously encapsulated surface. Its cut surface displays mottled, yellow-brown tissue containing numerous irregular cystic spaces (Figure 1). The tissue is turgid, soft, and moist.

The histologic appearance is quite characteristic of a parathyroid adenoma. There are many irregular cleft-like spaces between which there are abundant clusters of epithelial cells. These show a tendency to occur in an acinar pattern as well as irregular cords and columns (Figure 2). There is considerable pleomorphism present. Much of the tumor is composed of clusters of cells with little cytoplasm which represent the chief cells, while in other areas the cells have abundant pink cytoplasm. The latter represent the oxyphilic elements and indicate that some degenerative changes have occurred. In other areas, the pattern is the same, but the clusters are composed of characteristic water-clear cells showing the characteristic alignment of nuclei against the basement membrane and the abundant water-clear cytoplasm pointing inward into the cell mass. In those cases of so-called primary hyperplasia of the parathyroid gland, the entire substance of the gland is made up of non-neoplastic, water-clear cells identical in appearance to this. Another characteristic feature of this tumor, and a hang-over from the normal gland, is that of thin strands of stroma, each containing tiny capillaries, interspersed between the clusters of tumor cells, illustrating the close relationship between epithelial elements and blood supply which is a feature of endocrine tissue in general. The cystic spaces consist of blood vessels, lymphatics, or areas of cystic degeneration of the stroma.

The cellular pleomorphism and irregularity of

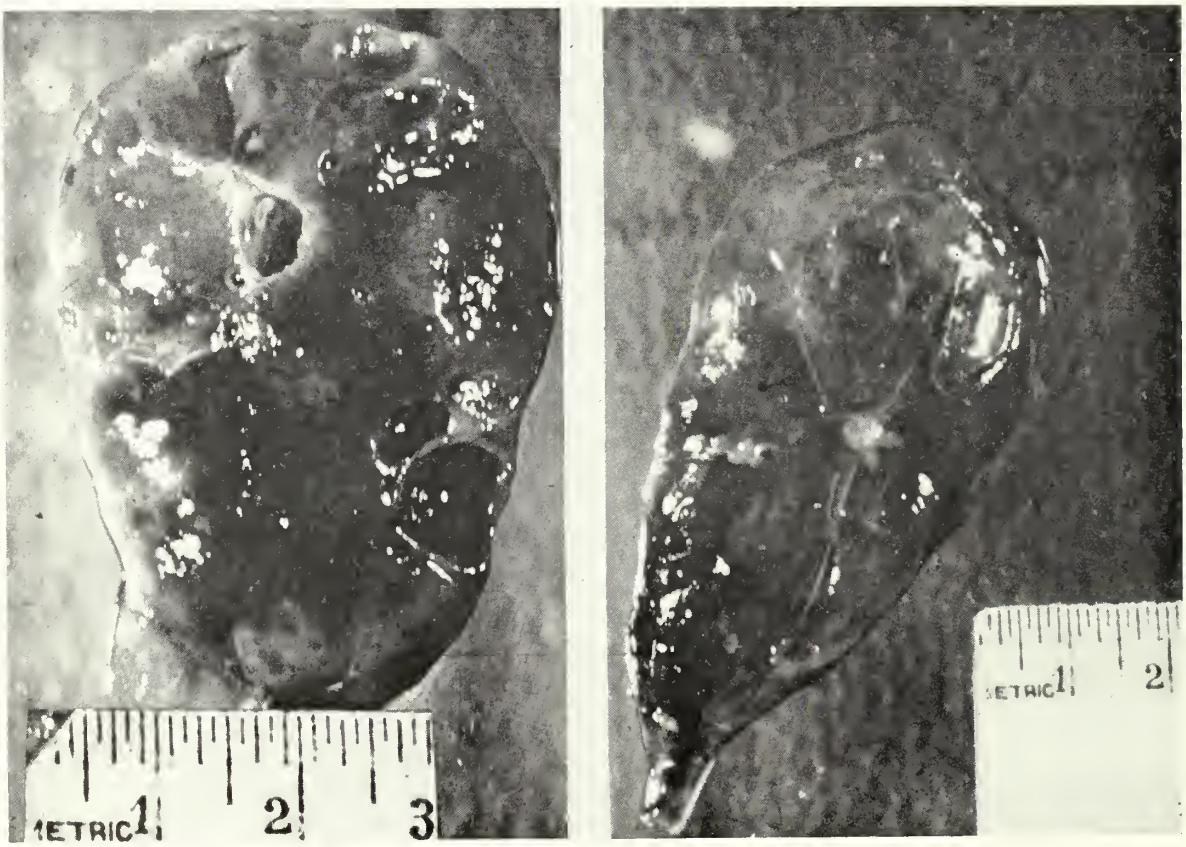

Figure 1. External surface of parathyroid adenoma is on the right, and the cut surface revealing the cystic spaces is on the left.

nuclei are no criteria of malignancy since the benign adenomas almost always have nuclear variability and hyperchromatism. One may get the impression of invasion within the substance of the tumor itself, but again this is not a criterion of malignancy. In fact, the diagnosis of parathyroid adenocarcinoma may be exceedingly difficult. Fortunately, they represent only 3 per cent of cases in which primary parathyroid hyperactivity exists. Another feature which may be confusing to the pathologist in attempting diagnosis by frozen section is that the parathyroid adenomas can secrete a colloid-like substance and may present an appearance not unlike thyroid.

The large size of this tumor is significant since it is a truism that the functioning parathyroid adenomas are associated with hypercalcemia in direct relationship to their size. When the tumor is small, therefore, the clinical syndrome may be obscured by inconstancy of elevation of calcuim and depression of serum phosphorus.

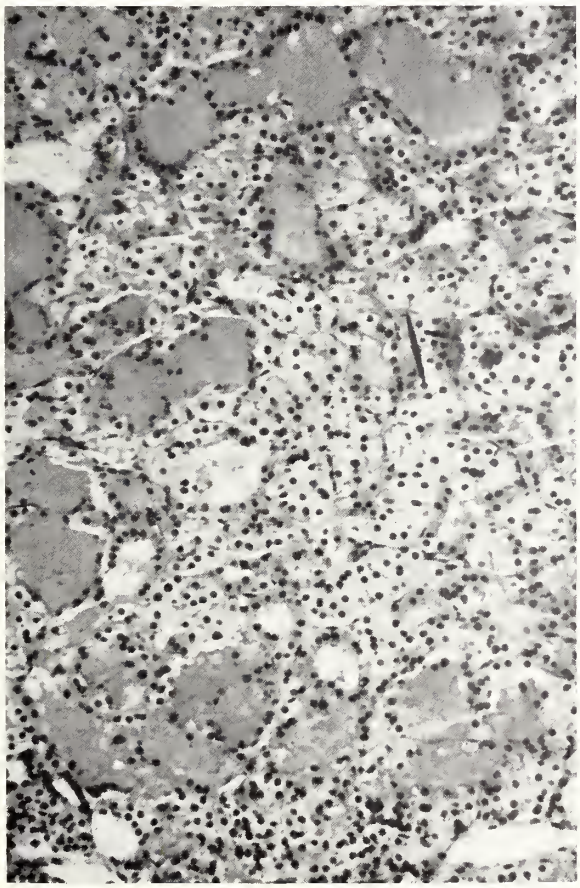

Figure 2. Parathyroid adenoma revealing cords of pale to granular cells in center of photograph, and a surrounding pattern of both acini and solid cords. Hematoxylin and eosin. X 157.

Figure 3. Note the fibrosis of the marrow space, with some osteoblastic reaction in the lower left-hand corner and osteoclastic reaction denoted by the multinucleated giant cells in the lower right-hand corner. Hematoxylin and eosin. X 250.

Three Clinical Manifestations

Primary parathyroid hyperactivity, whether due to hyperplasia, adenoma, or carcinoma may have three separate clinical manifestations. The most classical manifestation is the type of bone change described by von Recklinghausen, but the most common type seen in this country is the type with secondary nephrocalcinosis and nephrolithiasis that we have seen today. Lastly, there is an interlocking group in which both bony and renal changes occur.

The classical change in bone with hyperfunction of the parathyroid glands is that of osteoclasia with simultaneous osteoblastic repair associated with fibrosis within the marrow (Figure 3). This is manifest radiologically in the early stages as generalized osteoporosis. In the more advanced phases tumor-like

masses of hemorrhagic fibroblastic tissue incorporating numerous multinucleated giant cells appear. These are the so-called "brown tumors" and are reflected radiographically as cysts. All these alterations have been well shown in a number of cases I have had the opportunity to study. Fractures which heal with great difficulty are prone to occur at such sites (Figure 4).

The histologist frequently finds some necrotic bone spicules upon which new osteoid has been deposited in an irregular fashion. This may so distort the calcium seams as to suggest Paget's disease. Thinning of the cortex of long bones is a fairly constant feature. This is associated with great widening of the Haversian canals and results in a moth-eaten appearance. Another common feature is that of minute infraction of isolated cancellous spicules which may result in deposition of focal callus within the bone substance.

Figure 4. Unhealed fracture through cystic area of femur (Lateral and antero-posterior views).

Dr. Boley: Dr. Allbritten, may we have your comments?

Renal Complications

Dr. Allbritten: As so often happens in cases of hyperparathyroidism, this patient presented with one of the complications of the disease, namely a renal complication. The elevated blood pressure probably is secondary to the renal complication. Hyperparathyroidism is a progressive disease and renal complications are progressive and irreversible. It is of considerable importance to diagnose and treat the disease without delay. The renal function impairment was the most formidable aspect of this case, since the patient had a non-functioning kidney on the left and impaired kidney function on the right side. If she had continued to live for a few more years with a functioning adenoma, she probably would have died in renal failure, and may still do so.

One must remember that the parathyroid glands are usually four in number, two usually being situated in a superior location near the superior thyroid vessels and two in the region of the inferior thyroid vessels. They take their origin from the third and fourth branchial clefts and this is the reason that occasionally there are aberrant parathyroid glands in the mediastinum, since the thymus also takes origin from the third branchial cleft. About 20 per cent of parathyroid adenomas are found in an aberrant location, and when displaced, they are usually in the anterior mediastinum and not infrequently contiguous with the thymus. Functioning adenomas can be small and extremely hard to find. In this instance, a careful, time-consuming exploration of the neck did not disclose the tumor, so the exploration of the mediastinum was undertaken. Removal and examination of the residual thymic tissue and careful exploration of the anterior mediastium and the right side of the mediastinum again disclosed no abnormal tissue, but digital examination of the left side of the mediastinum disclosed a protruberant mass high up and posteriorly. The tumor received its blood supply from the neck, but not from the carotid or inferior thyroid artery, as one would expect. The vascular pedicle probably arose from the thyro-cervical trunk or perhaps from one of the veterbral arteries.

Postoperatively, the patient presented a number of problems. Although her systolic blood pressure ranged between 120 and 140, these were hypotensive levels for this patient and she required intravenous vasopressors for blood pressure maintenance until recently. During the first 24 hours, her urine output was only 150 ml. and the blood urea nitrogen rose to 65 mg. per cent and will probably remain elevated for some time since her renal function is poor. Within 24 hours after the operation the serum calcium dropped to 4.9 mEq/liter and the phosphorus was rising. She has, however, shown no signs of hypo-

calcemia or hypoparathyroidism, although this might have been expected.

Dr. Robinson: How do you determine whether a patient with hyperparathyroidism is a medical or surgical problem and what are the indications for exploration?

Dr. Allbritten: I don't know where to draw the line. I feel that any patient with evidence of increased calcium excretion or an elevated serum calcium and depressed serum phosphorus should be a candidate for exploration. Dr. Mantz, you speak of hyperplasia of the parathyroid. Do you think this is a proven entity?

Idiopathic Hyperplasia

Dr. Mantz: I feel quite convinced that there is such a thing as primary idiopathic hyperplasia of the parathyroid. These glands are composed of the large water-clear cells in a characteristic pattern. They are often associated with secondary hyperplasia of remaining glands and usually when hyperplasia occurs one finds it in more than one gland so that extensive resection should be performed.

Dr. Boley: Dr. Mantz, how would you treat these patients medically?

Dr. Mantz: I don't think there is such a thing as a medical treatment for true primary hyperparathyroidism. It seems to me that almost all the patients presenting with the signs and symptoms of complications of the disease who show hypercalcemia and hypophosphatemia invariably have primary parathyroid hyperfunction. In those patients with hyperplasia secondary to fundamental renal disease, medical or otherwise, parathyroid hyperfunction is seldom recognized clinically due to the more compelling nature of the kidney lesion.

Dr. Boley: The importance of early diagnosis and treatment of primary hyperparathyroidism has been stressed. Dr. Mantz has listed three clinical manifestations of the disease. To these we could add a fourth, namely those cases with signs and symptoms of hypercalcemia *per se*, but without renal or bone changes. A recent review by Bogdonoff et al.[1] indicates that awareness of the possibility of the diagnosis in diverse clinical patterns followed by the appropriate blood and urine chemistry studies will reveal a larger number of cases than we usually expect. The authors point out that, although renal lithiasis remains the most common complication of parathyroid hyperfunction, a number of other symptoms including neurologic or mental symptoms, gastrointestinal disorders, vascular complications, and multiple system involvement should also direct our thoughts toward that possibility. St. Goar[2] emphasizes in particular that unexplained gastrointestinal symptoms will sometimes give a clue to the earlier diagnosis of hyperparathyroidism.

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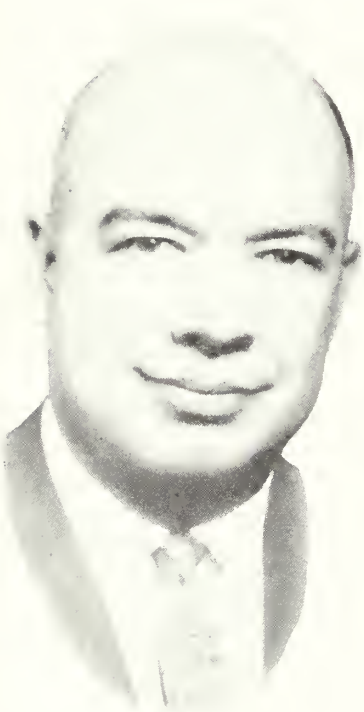
2. St. Goar, W. T.: "Gastrointestinal symptoms as a clue to the diagnosis of primary hyperparathyroidism: a review of 45 cases." Ann. Int. Med. 46:102-118, 1957.

The Art of Consultation

The art of consultation . . . should not be . . . simply a question of sending a patient away for a second opinion; it is the careful selection of the man who, by training and by temperament, is the most suitable for the matter in hand. . . . My partner made it perfectly plain to all his patients that, if they wished, a consultation would immediately be arranged, but also that, if he himself felt the need of a second opinion, no objection should be offered. The patient often requested that a particular individual be summoned, someone perhaps who had operated on another member of the family, or who had given sound advice on a previous occasion; and this request, unless absolutely unsuitable, was invariably granted. In this way, I met many physicians and surgeons from hospitals other than my own, and I learned a great deal from them, but it was my own surgical master, Sir Holburt Waring, who taught me, in a single word, one of the fundamental principles of consultation. Quite recently, I had been his house surgeon, and . . . after ten days [he said], "Really, Abercrombie, you are the worst house surgeon I've ever had." This formidable being, white-haired and gruff, was called in consultation by my partner, when I had been with him only a month or two, and as always I was bidden to attend. In giving his opinion, he turned to me and said: "I think, Dr. Abercrombie, if you will do so and so. . . ." DOCTOR Abercrombie! Had he really said "Doctor"? He had! By that single word, by that title, he acknowledged, indeed he welcomed, me as his colleague, and made it clear that at last we met on level terms. That is as it should be. When a consultant and a general practitioner meet, no matter how distinguished the one or how obscure or diffident the other, they meet on terms of absolute equality.—G. F. Abercrombie, V.R.D., M.D., The Art of Consultation, *The Practitioner*, January, 1959.

The President's Message



DEAR DOCTOR:

At a recent service club luncheon we were privileged to hear coaches from five city high schools talk about their prospective football teams for the present season. The tenure of the coaches stretch from the veteran of twenty-eight years to the novice, fresh from college, handling his first team.

The comments and lamentations of the coaches would have done justice to the moanings of a Bud Wilkinson or the evasiveness of a Casey Stengel. After listening to their stories, we came away with a firm conviction none of the Kansas City schools would win a game all year; in fact, they would be lucky to escape annihilation on the gridiron.

Through all the studied pessimism there was one theme with which we, as doctors, should be concerned. One school with 1,500 students had only 48 candidates for their football team. All of the coaches, except one, commented on the smallness of their squads and pointed out the large attrition rate once the going got a little rough—the beginning of scrimmage and blocking drills.

The explanation offered by three of the coaches was identical—too much competition from automobiles and not enough interest by the students in competitive sports. They pointed out the lack of physical activity indulged in by the great majority of our city high school students—even to the point of being driven to and from school, although living relatively short distances away. They further charged modern youth is being pampered and coddled in many other ways to the detriment of our young people. Admittedly the charges of the coaches are true to an extent, and their explanations may be correct. But, I for one, do not feel our youth is in such a bad way.

We parents must shoulder some of the blame. Our school system cannot escape some justified criticism, but what about the coaches themselves? Has their emphasis on winning and concentrating on the athletes who can make the team contributed to the thing they decry? Would not a strong intramural program build a better competitive spirit, encourage wider participation, and thus increase the physical fitness of the student body?

As doctors, the physical fitness of our children should be of concern to us. We all enjoy high school athletics and do not want to see them abolished, but some place along the line we seem to be missing the boat. You can support and encourage athletics in your community and use the great influence you have to guide and direct their course. Your high school coach can be a marvelous influence on the youth of your city. Your assistance and help in local school athletics will be appreciated by the school authorities. You will be enriched and rewarded by your association with the young men on your team.

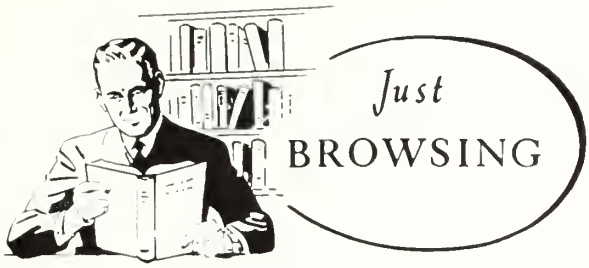
Fraternally,

Glenn R Peters M.D.

President

P.S.

I bet my team can lick yours.



"In preparing this article, I had in view that you did not wish for a plagiarized edition of some standard work on obstetrics; neither do you expect anything new or original. I have, in view of the foregoing, confined myself to such topics as we are all familiar with, and are of daily occurrence in practice. . . . First, as to purging in cases of protracted labor. I have several times been called to cases where the patient has been in continuous labor for two or three days; where the pains were strong and nothing abnormal; here an ounce of oleum ricini has worked charmingly, the medicine and labor striving for precedence. . . .

"Does quinine provoke labor pains? This question, I think, can now be answered in the affirmative, through the concurrent testimony of many observers. I have ceased prescribing it to pregnant females with malarial fevers, and diseases having a malarial basis, for the reason that it has caused miscarriage in a number of instances. I have also seen it of service in restoring the catamenia, suppressed from cold or other cause. . . .

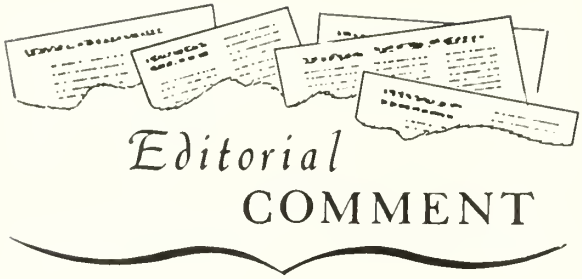
"Chloroform I never administer in ordinary confinements, except at the request of the patient. I always give it in versions, and other obstetrical cases, except forceps cases; here I prefer the intelligent co-operation of the patient.

"Speaking of the forceps, I will mention a good rule to observe, and that is, to bring the hips of the patient well over the edge of the bed, so that you can depress your forceps and push the *perineum well back*. I remember the case of Mrs. W., of Leavenworth, a primipara, who was in labor five days, under the care of two physicians of another pathy. Not wishing to be rude, I made an examination, and advised the forceps. I waited in an adjoining room, and in about three-quarters of an hour one of the doctors came to inform me that it was impossible to apply the forceps, and that it was a case for embryotomy. I had no difficulty in delivering, with the forceps, a living child, and certainly was not over ten minutes doing it; the other parties had neglected to do as I advise above. . . .

"I attended Mrs. K., a midwife, during an attack of erysipelas of the face and head. Before exfoliation was completed, that is to say, before the skin was quite sound in appearance to the eye, she attended five cases of confinement, and in each case puerperal fever resulted. I attended three of the cases, of which two died; the other two I did not attend, but followed them out, and they died. In all the cases consultation was had. My special object in referring to this matter is, to show the contagiousness of erysipelas in the puerperal state, which is now generally recognized and admitted. In this instance the patient was discharged as cured, and yet contagion followed. . . .

"I need hardly say, in conclusion, that it is almost impossible for us on the frontier, to furnish food for thought, or enrich our profession by original investigations, or weave fine-spun theories. We are expected to excel as physicians and surgeons; to be oculists and aurists, and, in short, to be skilled in all the specialties, and know as much and perform what is usually divided up among specialists in our large cities. At our annual meetings it is expected of us that we furnish an amount of original matter which would be considered ample for a lifetime by an European savant. Let us rather strive to render perspicuous our labors as practical men."

These quotations are taken from the report on Obstetrics, given by C. C. Shoyer, M.D., of Leavenworth, at the annual meeting of the Kansas Medical Society, in 1877.—*O.R.C.*



V. A. vs. Private Practice

In a recent letter from the Medical and Chirurgical Faculty of the State of Maryland Dr. Amos R. Koontz, chairman of the Committee on Veterans Medical Care of that society, retold a story which has been discussed around this society for sometime. In his letter he was reminding the Society once again, of the Veterans Administration infringement on private practice. The Medical and Chirurgical Faculty has recently undertaken an extensive campaign to make the various state medical societies aware of this infringement. Doctor Koontz has written several editorials for the *Current Medical Digest* and was anxious to enlist the JOURNAL's assistance in publishing an editorial concerning this manner. In his letter he stated "We need to hammer constantly if we expect to effect any reforms. Remember that the opposition is much better organized than we are, and if we expect to accomplish anything, it will require a lot of work on the part of all of us."

In his original article in the *Current Medical Digest* entitled, "Veterans and Patriotism," Doctor Koontz related, "It is to be expected that there would be a higher degree of patriotism among the veterans of our wars than among our citizens. Is this correct? Let us look into the matter.

"A little more than a year ago I was invited to make the principal address at the opening of a new hospital in a small town in Virginia. When the time came for my opening ceremonies, my invitation was rescinded. I was told by one of the local doctors that the invitation was withdrawn because the mayor of the town had heard that I had written or spoken (I am guilty of both) against veterans getting free medical care for non-service-connected disabilities.

"I don't know whether the service record of the mayor was distinguished or undistinguished. That is inconsequental. But, as chief executive of his town, what kind of an example of citizenship does he show if he favors having his fellow citizens pay his medical expenses simply because he once happened to wear a uniform?"

Doctor Koontz went on to say, "Unfortunately, though, he is representative of many veterans throughout this nation. A great many have been led to believe that because they once wore the uniform, they are set apart as a special class of citizens who should be accorded special privileges. Do they not realize that in war-time everyone cannot wear the uniform, and that the work of many of those out of uniform is often just as necessary for victory as that of those who serve with the Colors?"

In discussing the law which now allows non-service-connected disability free medical care, he said, "Originally the law did not allow the veterans with non-service-connected disabilities to have free medical care. In 1920 a law passed allowing such veterans, who were unable to pay the cost for private care, to be taken care of in Veterans' Administration Hospitals, if there was space available. It is common knowledge that this privilege has been abused in most flagrant fashion. Men driving Cadillac cars have been known to drive up to VA Hospitals and claim that they were unable to pay for private care. Men have been admitted to Veterans Hospitals with thousands of dollars in their pockets. This has not always been the fault of VA officials because, until recently, they had no means of determining whether a veteran was unable to afford private care except his own word, which had to be taken without question.

"The taking care of veterans with non-service-connected disabilities has caused the Empire Builders and the VA to clamor for more and more hospitals, even when there were plenty of vacant beds in existing hospitals. Congressmen anxious for veterans' votes have subserviently voted them."

"Now, however," he continues, "another element has crept into the ever expanding VA hospital system. Just after World War II, Dean's Committees were established with the result that VA hospitals and medical schools were affiliated with the medical schools, and the medical schools furnish consultants to assist in the care of the patients. Together with this, the residency system has expanded tremendously. Now the VA officials openly say that they must have non-service-connected disability cases in order to maintain their residency training program. I don't

question that, but should these programs be maintained at enormous expense of the American taxpayer? We now have a shortage of interns in most of our civilian hospitals. If the VA hospitals, which now, according to the most reliable information, have upwards of 85 per cent of their cases of the non-service-connected disabilities, were compelled to take patients with only service-connected disabilities, it is obvious that most of the hospitals would have to close or there would be a consolidation of the hospitals into a much smaller number."

Doctor Koontz asked if it would not be better to eliminate the residency programs in the veterans hospitals. He says this would not only ease the tax burden but would make available more housemen for the civilian hospitals. He also says if veterans only received free care for service-connected disabilities from the government there would be little excuse for the existing number of VA hospitals and clinics. He says, "There are many who feel that veterans with service-connected disabilities should be taken care of in Service hospitals or preferably at their homes on a home town care basis. Some schedule of fees such as is used by *Medicare* could be worked out to cover this program."

This kind of arrangement he feels would benefit both the veteran and the cost to the taxpayer. He says we now spend a billion dollars yearly on the medical care of veterans. (The total V. A. bill is five billion dollars.) If the veterans with service-connected disabilities were cared for on a home town care basis, nearly all of these billions could be saved. He further comments that the indigent veterans could be taken care of locally as other indigents are.

Doctor Koontz added one further comment at the close of his editorial. He said, "Empire Building often has funny excuses for its existence. A former chief medical officer of the Veterans Administration was heard to say that he was in favor of free medical care for all veterans and their dependents, as a means of combating socialized medicine. Twenty-two million veterans and their dependents would mean at least half of the population, and socialized medicine would be a *fait accompli*."

Doctor Knootz's point is well taken and is a problem in Kansas also. This is something that all doctors should consider and be aware of.

Opportunities in Scouting

The Executive Office recently received a letter from Mr. Ross Beach, Jr., asking the Society's cooperation in making one of Kansas' great community enterprises more successful. He was referring to the Boy Scout program which is serving boys in every county of our state. It was thought this might be of interest to many physicians with boys reaching scout age or who are participating in the scouting program.

October 20 marks the kick-off for the co-ordinated effort by the seven local councils of the Kansas Boy Scouts to raise needed operating funds for 1960. There are approximately 55,000 Cub Scouts, Boy Scouts and Explorer Scouts in Kansas, with a troup in practically every village, town and city of the state. The leadership is largely volunteer, supplied by adults rendering service of untold value to Kansas youth. These volunteers are given guidance by a small group of professional scout workers through the Boy Scout Council. The operating budget of these seven councils for 1960 amounts to $650,000, or about $12.00 per scout—a small sum when considered as an investment in future good citizenship. An important point; less than 1 per cent of this $650,000 will leave the state, remaining 99 per cent plus will be devoted to character building of Kansas youth.

These combined operating budgets are financed entirely by gifts from the citizens and organizations of Kansas. Almost three-fourths of the amounts will be raised through Community Chest United Fund Drives; the balance, over $150,000, will be raised through direct solicitation.

Many of the organizations and businesses across the state are recognizing the value of supporting scout activities. Many such supporters can look back on their younger days and remember some of the adventures they had as cub scouts, boy scouts or explorers. The Kansas boy scout program is enjoying statewide active participation especially in summer camps whose acreage total 2,000 acres and provide recreation and outing for more than 11,000 scouts each year.

Many physicians feel that their practice takes them away from their families and growing boys. Perhaps the boy scout program can provide a means to become better aquainted with the youngsters at home. Since all of the scout leaders and masters are volunteer people who have an interest in the future of the young citizens, this may afford an opportunity to enjoy some of the fatherly pleasures that a heavy practice tries to steal. The boy scouts will be soliciting the physicians' support soon and it was felt the information should be passed along. An interest in Scouting can be fun.

Kansas Division to Participate In Epidemiologic Study of Cancer

As reported in the July 11, 1959 issue of the *Journal of the American Medical Association*, the American Cancer Society is undertaking a large-scale study of cancer in relation to various environmental

factors. The plan is to enroll about 500,000 families nationwide of which about 15,000 will be enrolled in the Kansas Division beginning November 9, 1959. Volunteer workers of the Kansas Division will be used to enroll families in which there is at least one person over the age of 45 and then request every member who is over the age of 30 to fill out a questionnaire. In order to keep the information confidential, each subject will put his filled-out questionnaire in an envelope and seal it before returning it to the volunteer for transmittal to the research center. Kansas volunteers will not interview the subjects and will not see the completed questionnaires.

The subjects will be followed annually for six years to determine which of them die in this interval. Causes of death will be ascertained from death certificates. When cancer is mentioned on a death certificate, the physician who reported it will be requested to supply additional medical information (e.g., histologic type, stage of disease at time of diagnosis, etc.).

According to Lee Marshall, Executive Director of the Kansas Division of the American Cancer Society, the major purpose of the study is to ascertain the association, if any, between various environmental factors (such as occupational exposures, habits, diet, factors related to the breast and female genital organs, etc.) and the later occurrence of cancer. It is hoped that this will yield clues as to a number of possible causes of cancer.

In addition, Marshall said, it is hoped that the study will provide information of value in relation to lay education. The subjects are asked detailed questions about "present physical complaints" and the answers will be analyzed in relation to cases of cancer diagnosed in the subsequent several months. In order to avoid biasing the subjects, questions are asked about physical complaints which are probably not related to cancer as well as about complaints which may be symptomatic of cancer. Assuming, as is probable, that positive answers to certain of these questions are highly related to the presence of cancer, the data should be of value in persuading people with such complaints to see their doctor immediately. The aim, of course, is to reduce the factor of "patient delay" in the diagnosis of cancer.

More Beds Needed

Are our facilities for medical care adequate? More hospital beds are required to meet our health needs.

Number of hospital beds per 1,000 persons in the U. S. now averages 7.8 but this number should be increased to 13.1—an increase of almost 70 per cent—to meet the ratio prescribed in the Public Health Service Act. In nursing homes close to 3 times as many beds as those currently available are required to meet the prescribed ratio.

Of beds needed, about 42 per cent are earmarked for mental hospitals, 37 per cent for general hospitals, 16 per cent for chronic disease hospitals, and the remainder for tuberculosis hospitals.

More physicians will be needed to keep pace with our population growth within the next two decades. In 1955, there were approximately 132 physicians per 100,000 persons in this country. It is estimated that by 1975 the population will have increased to such an extent that the physician-population will drop below that for 1955.

To maintain this ratio, the equivalent of 20 new medical schools is needed. "Only in this way can the number of new physicians entering practice keep pace with expected population growth between 1955 and 1975."

Age and sex both play a role in the number of physician visits paid in this country. Women use physician services more frequently than men. Also, ratio of physician visits is highest for children under 5 years and for adults of both sexes in the 65-year and over age group.

Most physician visits (approximately 70 per cent) involve diagnosis and/or treatment of illness. Of such visits, two-thirds are related to chronic and one-third to acute illnesses. Ten per cent of visits are for general checkup, 7 per cent for immunization, and 4 per cent for prenatal and postnatal care.

How many patients does a doctor see each day? The general practitioner carries the heaviest national average daily patient load—18.5. The pediatrician has the next highest—17.1 Average number of daily patient visits for other types of practice includes 13.1 for E.N.T., 12.7 for obstetrics and/or gynecology, and 12.1 for internal medicine.

The cost of medical care has been increasing sharply recently. Last year, the cost of medical care was almost 5 per cent higher than in 1957, a percentage increase exceeded only by the rise in transportation costs.

There has been a change in the way in which a patient's medical care dollar is spent. The physician's share of the medical care dollar has been declining steadily for the past few decades—from 32.6 cents in 1929 to 24.5 cents in 1957. Contrary to popular belief, the amount spent on drugs has remained stable for this period—at approximately 20.6 cents. However, the amount spent on health insurance and hospital care has practically doubled.

The number of persons entering hospitals annually has increased nearly 150 per cent over the past two decades. During this period, length of patients' stay in all types of hospitals decreased 44 per cent. In general hospitals alone, length of stay dropped from 12.6 days to 8.9 days—a decrease of 29 per cent.

Washington HIGHLIGHTS

This summary of Washington news is prepared by the A.M.A. Washington Office for distribution to state medical journals.

No Final Action by Congress To Affect Doctors

Congress this year failed to take final action on any legislation of major interest to the medical profession except for the annual appropriation for medical research.

However, work was started on three measures of particular concern to physicians—the Forand, Keogh-Simpson and international health research bills. Showdown votes on them are probable next year. If there are no votes next year, they will die and must be reintroduced in 1961 if they are to be considered further by Congress.

The House Ways and Means Committee held hearings on the Forand bill, but deferred showdown voting on it until next year. The legislation—which is vigorously opposed by the medical profession, other groups on the health team and the Eisenhower Administration—would provide hospital, surgical and nursing home care for federal Social Security beneficiaries. Social Security taxes would be raised to help finance the expensive program.

The Keogh-Simpson bill, after being approved by the House, was left hanging in the Senate Finance Committee. The Senate committee held two sets of hearings. It could vote early next year on the legislation which would grant income tax deferrals to physicians and other self-employed persons as an incentive to invest in private pension plans.

Chairman Oren Harris (D., Ark.) postponed until next session a vote by the House Commerce Committee on the Senate-approved international medical research bill because of a backlog of more urgent measures requiring committee action this year. He said that "a diligent effort" would be made during the recess to clarify a number of points at issue revealed in testimony before his committee.

The bill calls for an annual $50 million authorization to finance a new national institute of health to foster international medical research programs and cooperation. The Administration opposes some of its provisions.

President Eisenhower and Arthur S. Flemming, Secretary of Health, Education and Welfare, made clear that they didn't feel bound to spend the additional $106 million which Congress voted for medical research. Congress raised the $294 million requested by the President to $400 million.

Mr. Eisenhower expressed concern that Congress is going too fast in providing medical research funds which are administered by the National Institutes of Health. He warned of a danger that the quality of research projects might be lowered and that manpower and other resources might be diverted from "equally vital teaching and medical practice."

He directed that every project approved must be "of such great promise that its deferment would be likely to delay progress in medical discovery."

Secretary Flemming said that the President's criteria would be followed conscientiously. But the Secretary gave assurance that the restrictions would not be so rigid as to hamper research by denying funds for worthwhile projects.

One of the most important and surprising developments during this session of Congress was the political power shown by Mr. Eisenhower, a lame-duck Republican president, in generally calling the shots on legislation although Democrats controlled the House and Senate with substantial majorities.

In his fight against "big spending" measures sponsored by Democrats, the President effectively used his veto power to get the bills more to his liking. The Democrats were unable to muster the votes to override vetoes of two housing bills.

A third compromise housing bill retained three provisions of interest to the medical profession. One would provide Federal Housing Administration loan guarantees for building proprietary nursing homes. A second would provide FHA loan guarantees and direct loans for housing for elderly persons. The third would authorize loans for construction of housing for interns and nurses.

Live Polio Virus Vaccine Soon

Live polio and virus vaccine may be licensed for public use within a year or two Dr. Leroy E. Burney, Surgeon General of the Public Health Service, said:

"If energetic efforts are continued to find answers to the remaining technical questions concerning safety, effectiveness and manufacturing procedures, one or more of the three vaccines now being proposed may be under production within one to two years."

Transfer of Radiation Health Safety

Primary responsibility for radiation health safety has been transferred from the Atomic Energy Commission to the Department of Health, Education and Welfare.

Such a shift in responsibility was called for in legislation pending in Congress but President Eisenhower ordered the transfer without Congressional action.

The President directed HEW to "intensify its radiological health efforts and have primary responsibility . . . for the collation, analysis and interpretation of data on environmental radiation levels such as natural background, radiography, medical and industrial uses of isotopes and x-rays and fall-out."

HEW Secretary Flemming also was named chairman of a cabinet-level Federal Radiation Council.

Some Medicare Benefits May Return

Officers in charge of the Medicare program for military dependents were optimistic that certain medical benefits dropped for economy reasons in October, 1958, will be restored next January 1. But the professional director of the program, Col. Norman E. Peatfield, said that the Medicare permit system will be retained.

Notice of Kansas Basic Science Board Examination

The Kansas Board of Basic Science Examiners will give examinations in the subjects of anatomy, bacteriology, chemistry, pathology, and physiology on November 6 and 7, 1959, in Science Hall, Kansas State College, Pittsburg, Kansas. Satisfactorily completed applications for examination should be submitted at least 30 days prior to date of examination. Application blanks and other information can be obtained from L. C. Heckert, Secretary of the Kansas Board of Basic Science Examiners, Pittsburg, Kansas.

Blood Cholesterol Lowered With Nicotinic Acid

Prompt and sustained reduction of blood cholesterol levels has been obtained in hypercholesteremic patients treated with large doses of nicotinic acid, according to Drs. William B. Parsons, Jr., and John H. Flinn, of the Department of Internal Medicine, Jackson Clinic, Madison, Wisconsin.

Drs. Parsons and Flinn reported, in a scientific exhibit at the 108th annual convention of the American Medical Association, that nicotinic acid is an effective and practical agent for the reduction of elevated levels of blood cholesterol, particularly the beta-lipoprotein fraction.

The lowering of blood cholesterol is believed to be a factor in preventing or arresting atherosclerosis. There is increasing evidence that the occurrence of atherosclerosis can be associated with hypercholesteremia and elevated ratios of beta-lipoprotein to alpha-lipoprotein cholesterol.

Forty-four patients were given 3 gm of nicotinic acid daily, in divided doses, for a period of 12 weeks, after which dosage was tailored to meet the response of the individual for 44 weeks.

After 30 weeks, nicotinamide was substituted for nicotinic acid. After 12 weeks with nicotinamide, nicotinic acid therapy was resumed in the form of capsules containing nicotinic acid supplemented with B complex vitamins. B complex is combined with nicotinic acid to prevent the vitamin imbalance which sometimes occurs when nicotinic acid is administered alone. Patients were not under any dietary restrictions, with one exception, during the term of treatment.

The side effects which often occur after ingestion of nicotinic acid (flushing and pruritus) were found to subside within the first week of therapy in nearly all cases. Drs. Parsons and Flinn observed no serious toxic effects attributable to nicotinic acid.

The Wisconsin investigators also pointed out that the mechanism by which nicotinic acid produces a reduction in cholesterol remains obscure. Significantly, they found that the substitution of nicotinamide in equal dosage after prolonged nicotinic acid therapy was followed with a prompt return of blood cholesterol to pretreatment levels in every patient. The apparent failure of nicotinamide may provide a clue to the mechanism of action because of the slight chemical differences between the two drugs.

The physicians stress that study for a much longer period (5-10 years) will be required to determine whether this form of therapy for hypercholesteremia will prevent or retard the progression of atherosclerosis in humans as it does in laboratory animals.

This study was supported by grants from the National Heart Institute, American Heart Association, Wisconsin Heart Association, and Wampole Laboratories.

The Business Side of Medicine

Joint Ownership of Property

FLOYD F. WEHRENBERG, ***Kansas City, Missouri***

This article is to be the first in a series dealing with estate, insurance, investment, and tax problems in a general way. They are intended to show the need for careful study and planning of the financial affairs outside your medical practice.

Jointly owned property with survivorship rights originated in an era much less complex than the present. Generally it was a means by which a small amount of property could be transferred to a widow with a minimum of cost and inconvenience. For the average professional man of today, the advantages of such ownership are overshadowed by a great number of disadvantages. Because many property owners fail to consult legal counsel or from lack of knowledge or habit, they continue to acquire property in joint ownership.

Advantages of Joint Ownership

The primary advantage of joint ownership is that property so owned passes by law to the survivor, saving some of the usual probate and administrative costs. Another advantage is that the survivor has practically immediate access to the property. Due to these advantages such ownership may be desirable for certain classes of property. It may offer a simple solution in the case of the small estate to pass entirely to the surviving spouse. In medium to large estates, very limited use of joint ownership may be justified.

One of the disadvantages of joint ownership is that it may give rise to a gift tax problem. A gift is generally made for tax purposes when a person purchases property with his funds and places title in joint ownership with survivorship rights. This subject is far too complex to be covered adequately in this article, but it does warrant consultation with your legal advisor before title is placed in this manner. The fact that the parties may be unaware or did not intend a gift is immaterial. There are, however, some exceptions to this gift rule, such as cash and U. S. bonds. Placing either of these in joint ownership does not in itself constitute a gift. A gift occurs only when such cash or bonds are converted to the donee's personal use.

Jointly owned property with survivorship rights also presents serious estate tax problems. Broadly speaking, such property is taxed in the estate of the first spouse to die in the same proportion as that person contributed to the cost. However, it is assumed that the first spouse to die contributed the entire cost and the burden of proving that all or part of the cost was contributed by the surviving owner is on the estate. It must also be established that no part of the cost contributed by the survivor was from funds that were originally owned by the decedent.

Above Marital Deduction

Since all joint property with the right of survivorship passes outright to the survivor, it is often impossible to use the marital deduction on the most favorable basis. For example, if all of a husband's estate is jointly owned, more property will pass to the wife than will be deductible as a marital deduction in the husband's estate. In this case, joint ownership will be responsible for an unnecessarily high and burdensome tax upon the subsequent death of the wife. The problems of estate taxes, marital deductions and control over the ultimate disposition of property, all manifest themselves where use of

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joint ownership with rights of survivorship is made without fully investigating the advantages and disadvantages of such ownership.

Joint ownership with survivorship rights is fully justified under proper circumstances, however its extensive use will create costly problems. Such ownership should never be employed without first seeking the advice and guidance of an attorney experienced in estate planning.

Subsequent articles will deal with other estate planning problems such as the marital deduction and life insurance. In the meantime, it could be well worth your while to review this matter of joint ownership as it affects your particular situation.

Report New Index System For Medical Literature

CHICAGO—The American Medical Association and the United States Public Health Services' National Library of Medicine in Washington announced jointly today that, beginning Jan. 1, 1960, they will institute a new program for the indexing of medical literature which is estimated at 220,000 articles annually.

The new system, which calls for mechanizing the composition of the index itself, will not only speed up the reference service to physicians, but it will also be less costly.

Dr. F. J. L. Blasingame, executive vice president of the American Medical Association, said that this new joint effort by a government agency and a professional society is "a revolutionary step in the speed-up of medical communications which, in the end, will benefit patients everywhere."

Dr. Frank B. Rogers, Washington, D. C., director of the National Library of Medicine, which was established by Congressional action in 1956, said the new operation would "lift scientific and medical documentation to new heights of efficiency and usefulness. Physicians will come to know eventually that the National Library of Medicine and the American Medical Association can jointly perform a real service to all who work close, hands and heart, to the problems of disease."

Here, briefly, is how the new indexing system will work:

1. The American Medical Association will discontinue publication of its "Quarterly Cumulative Index Medicus," compiled by the library staff. This Index served as an invaluable aid to physicians, teachers, editors and writers, students, and libraries since it was started in 1916.

2. The "Current List of Medical Literature," published by the National Library of Medicine, will be expanded in coverage to include currently published medical periodicals not covered in the past by either the National Library or the A.M.A.

3. Beginning with the issue of January, 1960, the "Current List of Medical Literature" will appear in a revised format, using improved composition techniques, and will be renamed "Index Medicus." The new "Index Medicus" will be published monthly by the National Library of Medicine and will be available on a subscription basis through the Superintendent of Documents, Government Printing Office.

4. The A.M.A. will publish annual cumulated volumes of the new index, which will be known as the "Cumulated Index Medicus," beginning with the volume for the calendar year 1960. The A.M.A. will bear the cost of publishing the "Cumulated Index Medicus," independently of the National Library. In publishing this index, the A.M.A. will use cumulative copy, in the form of film negatives, prepared and furnished by the National Library of Medicine.

Dr. Rogers said the mechanized system will revolve around a new type camera (Eastman) which is capable of photographing text material at the rate of 230 cards per minute. The camera not only reduces printing costs, he said, but it also speeds up production which is all important because of the pressing need by physicians to have notice of current literature as quickly as possible.

Dr. Rogers said that the savings incurred in the production operation make it possible to expand coverage to currently published medical periodicals not presently covered by any index.

Excavations in the old Roman city of Pompeii show that the city had a system of pedestrian crossings. These consisted of a set of stepping stones which led from the footpath to a central street refuge and thence on to the opposite footpath.

Los Angeles is installing 1,500 dual-purpose signs which will be fixed to traffic signal lights. In a folded position, each sign will only give the name of the particular street on which it is situated. But if the traffic light fails, the electro-magnetic circuit on the hinged street sign is broken and the street sign unfolds and becomes a stop sign.

A rookie policeman, making his first safety talk, thought he had his statistics well in hand. "The death rate per 100 million miles last year," he said, "was 5.1." Someone in the audience asked him what the 5.1 meant. "It means," was the floundering reply, "that for every 100 million miles traveled, five people were killed and one person is at the point of death."

Announcements

Professional meetings, conferences, and postgraduate courses of national importance are listed for the DOCTOR'S CALENDAR. *Notice of the session is posted in advance to allow the physician time to make preparations.*

The Department of Medicine of the Menorah Medical Center shall hold its annual A. Morris Ginsburg Memorial Seminar on November 4 and 5, 1959. The guests this year will be Morris Ziff, Ph.D., M.D., Professor of Medicine, University of Texas, Southwestern Medical School.

All physicians are invited to attend. The general subject will concern Rheumatoid Arthritis and the Rheumatic Diseases.

The Part I Examinations of the American Board of Obstetrics and Gynecology are to be held in various parts of the United States and Canada, on Friday, January 16, 1960, at 2:00 p.m.

Candidates notified of their eligibility to participate in Part I must submit their case abstracts within thirty days of notification of eligibility. No candidate may take the Written Examination unless the case abstracts have been received in the office of the Secretary.

Current Bulletins outlining present requirements may be obtained by writing to the Secretary, Robert L. Faulkner, M.D., American Board of Obstetrics and Gynecology, 2105 Adelbert Road, Cleveland 6, Ohio.

The next Pan American Medical Association Congress will meet in Mexico City, May 2 to 11, 1960.

The scientific program, through its 48 different medical sections, will include all branches of medicine and surgery, dentistry, hospital administration, and medical education.

New sections added since the last Pan American Medical Association Congress include Space Medicine, Hematology, Cancer Cytology, and a large section on General Practice.

The Congress will also have scientific and commercial exhibits, medical motion pictures, and closed circuit television demonstrations of new techniques. Tours will be arranged to the various medical institutions by the Mexican Chapter of PAMA.

Seven guest speakers will participate in the Fourth Annual Clinical Conference, "Tumors of the Head and Neck," to be held November 13 and 14, 1959. Sponsors of the Conference are The University of Texas M. D. Anderson Hospital and Tumor Institute and The University of Texas Postgraduate School of Medicine. The Clinical Conference is conducted for the benefit of practicing physicians.

Topics to be discussed include: Cancer of the Intra-oral Cavity, Present Concepts in Head and Neck Cancer, Diagnosis of Head and Neck Cancer, Problems of Reconstructive Surgery in Cancer of the Head and Neck Regions, Cancer of the Pharynx and Nasopharynx, Report on Perfusion of Head and Neck Tumors.

Registration will be Friday, November 13, from 8:00 to 9:00 a.m. in the Auditorium at M. D. Anderson Hospital. Members of the Academy of General Practice may obtain 10 hours credit for attendance at the conference. Those who wish this certification must register in advance with the University of Texas Postgraduate School of Medicine, Jesse Jones Library Building, Houston, Texas. A fee of $5.00 must accompany registration for credit, with checks made payable to The University of Texas. Those who are attending non-credit will be registered free of charge. Address requests for information to: Editorial Office, M. D. Anderson Hospital, Houston 25, Texas.

The American Medical Association's 13th clinical meeting December 1-4 in Dallas, Texas will draw some 3,500 physicians, mainly from the southern and southwestern states.

Planned in cooperation with Dallas physicians, the

meeting is designed to help the family physician meet his daily practice problems.

Dr. Everett C. Fox, Dallas, is general chairman of the meeting, while Dr. C. D. Bussey, Dallas, is program chairman.

Among the subjects to be discussed on the scientific program are soft tissue injury; whiplash injuries of the neck; diabetes; heart murmurs in children; new laboratory procedures; new resuscitation techniques; premarital and marital counseling, and the problem child.

Dr. Hubertus Strughold, professor of space medicine at the School of Aviation Medicine, Randolph Air Force Base, Texas, will be principal speaker at the opening scientific session, December 1. Dr. Strughold, often called "the father of space medicine," will discuss the role of medicine in the space age.

The winner of the A.M.A.'s Distinguished Service Award at the Atlantic City meeting—Dr. Michael E. DeBakey—will participate in a symposium on the surgical considerations of cerebrovascular insufficiency Tuesday afternoon, December 1. Dr. DeBakey, chairman of the department of surgery at Baylor University College of Medicine, Houston, was given the award for his outstanding contributions to medicine in the field of vascular surgery.

The scientific program, including lectures, symposiums, medical motion pictures, color television, and nearly 100 scientific exhibits, will be held in Dallas Memorial Auditorium. Industrial exhibits will number 251.

The auditorium will also house the "world's largest health fair," sponsored by the Dallas County Medical Society in conjunction with the A.M.A. The fair will run from November 27 to December 7 and will be open to the public.

The fair will feature 150 educational exhibits, prepared by the A.M.A., allied health groups and voluntary health organizations. They will be manned by members of the Dallas society.

This is the second time that the A.M.A. has met in Dallas. It held an annual meeting there in 1926.

The Oklahoma City Clinical Society will open its twenty-ninth annual three day conference at the Biltmore Hotel on October 26, 1959.

An outstanding program of postgraduate teaching has been arranged. This includes lectures and discussions by fifteen distinguished guest speakers selected from various medical and teaching centers throughout the nation. In addition to the general assemblies there will be specialty lectures, a clinical pathologic conference, and daily luncheon roundtable question and answer sessions.

The entertainment will include a banquet on Monday evening at which time the Oklahoma County Medical Society will be host to the guest lecturers and out-of-town doctors. Mr. Chester H. Lauck, of the team "Lum and Abner," nationally known entertainer and executive assistant of the Continental Oil Company of Houston, Texas, will be the principal speaker of the evening. On Tuesday evening, there will be a social hour followed by eight specialty group dinners, and on Wednesday evening, to climax the three day conference, the annual dinner-dance sponsored by the Oklahoma City Chamber of Commerce will be held.

The fall clinical conference of the Oklahoma City Clinical Society is acceptable for credit under Category I by the American Academy of General Practice.

The A.M.A. House of Delegates, numbering 208, will meet throughout the week at the Adolphus Hotel, meeting headquarters. The first act of the House will be to name the General Practitioner of the Year. The late Dr. Lonnie Coffin, Farmington, Iowa, was the last recipient of the award, given annually to an outstanding American doctor for his medical and civic contributions to his community.

The clinical session has been held in St. Louis, Washington, D. C., Los Angeles, Denver, Miami, Boston, Seattle, Philadelphia, and Minneapolis. Physician attendance has ranged from 1,896 at the first Cleveland meeting to 4,427 in Boston.

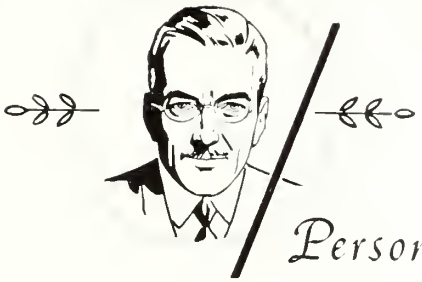
I had a feeling once about Mathematics—that I saw it all. Depth beyond Depth was revealed to me—the Byss and the Abyss. I saw—as one might see the transit of Venus or even the Lord Mayor's Show—a quantity passing through infinity and changing its sign from plus to minus. I saw exactly how it happened and why the tergiversation was inevitable—but it was after dinner and I let it go.

—*Winston Churchill*

Society needs more than anything else to be reminded that man is, in himself, ultimate value . . . that neither the pressure of events nor the exigencies of diplomacy can warrant the final debasement of man. Art is neither use, nor appointed task; but given human compulsions, some intellectual stature and great competence, it can perhaps bring man back into focus as being of supreme importance.

—*Ben Shahn*

As a result of illness and injury, workers with family incomes under $2,000 per year lost an average of 10.3 days from work during the 12 months ending June 30, 1958, as compared with a loss of 5.9 days for those in families earning $7,000 and over, according to findings of the U. S. National Health Survey of the Public Health Service. An inverse relationship existed also between income and other forms of restricted activity, such as days in bed due to illness and injury.



Personalities -IN KANSAS MEDICINE

Dr. Kenneth R. Grigsby, a Coffeyville physician, is planning to move his office to a building in the 4th Street shopping center sometime in November. His present office is now located in the Medical Center Building.

Governor George Docking has appointed **Dr. E. R. Hill** of Lyons, to be coroner of Rice County. He succeds the late **A. E. Crawford.**

Dr. Charles S. Brady, Atchison, has been appointed by Governor Docking to a 4-year term on the State Board of Health Advisory Hospital Council. He succeeds **Dr. John L. Grove,** Newton, whose term expired.

Work is now being completed on the new office of **Dr. A. L. Scherer** in Osborn. His new quarters will have office, consultation room, a laboratory, and a waiting room.

Dr. Florence Friesen has closed her medical office in Hesston where she has been practicing medicine for the past six years.

Doctor Friesen has been a medical missionary to India for many years. Following her retirement from mission work in 1941, she practiced medicine at Greensburg for eight years where her husband served as pastor. In 1953 they moved to Hesston.

Dr. L. O. Forney, Hutchinson, recently celebrated his 88th birthday with two other Hutchinson senior physicians. **Drs. Richard A. Stewart** and **John J. Brownley** met with Doctor Forney in his home for a chat about old times during the celebration. Doctor Forney, who is now confined to his bedroom came to Hutchinson in 1874 and began practice in 1905. At that time Hutchinson had less than 100 people.

One of his visitors, Doctor Stewart is 92, and was in practice in Hutchinson from 1890 to his retirement nine years ago. At one time he was the town's chief surgeon. It was Doctor Stewart who bought the site of the Grace Hospital and erected a frame building which in 1906 was named Stewart Hospital in his honor.

Doctor Brownley is still practicing medicine and is the youngest of the trio, being 76. He has been practicing in Hutchinson since 1911.

Dr. K. J. Millett, Larned, has announced that he is resigning his partnership with **Dr. LeRoy Shepard** and **Dr. S. T. Coughlin** to become a partner and surgical associate in Jackman, Nelson and Byers, a medical partnership in Fremont, Nebraska.

Doctor Millett graduated from Creighton University School of Medicine in 1948, and interned at St. Joseph Hospital in Omaha, and then served a three-year surgical residency at that hospital. Doctor Millett returned to Larned in 1952 and began practice with Drs. Shepard and Coughlin.

Doctor Millett's work in Fremont will be exclusively in the field of general surgery.

Dr. William J. Reals, Wichita, St. Joseph Hospital pathologist, has been selected to lead a panel discussion on "Pathology, Service for Ambulatory Patients" at the annual meeting of the American Society of Clinical Pathologists in Chicago.

Dr. Christopher G. Davis, Kansas City, was named an assistant county physician on recommendation of the chairman of the Wyandotte County Board of Commissioners.

Doctor Davis will take the place of **Dr. William C. Rasmussen,** who is on a temporary leave for one year in California.

Kingsley will have a new doctor soon as **Dr. William O. Myers** begins practice there. Doctor Myers is a graduate of Northwestern University and will be associated with **Dr. M. Dale Atwood.** Dr. and Mrs. Myers are moving from Hastings, Nebraska.

Dr. C. D. Townes, Jr., has established an office in Oskaloosa in the Hampton Building, the former office of **Dr. James Pike.** Doctor Townes has been and still is practicing physician and surgeon in Perry community. He will come to Oskaloosa on a part-time basis.

Miss Sara Selbe, M.D., Phillipsburg, has joined Drs. Bauer, Hardman, Sheppard and Woods as a member of their staff in Smith Center.

Doctor Selbe graduated from the University of Kansas School of Medicine in 1958. She interned at San Diego County Hospital, in San Diego, Calif. Doctor Selbe is probably the first woman M.D. ever to practice in Smith Center.

Dr. Charles Graham of Colby has been named to the post of Medical Advisor to the Northwest Area Service Committee of the Kansas Division, American Cancer Society.

Doctor Graham will advise the Committee on medical questions that may pertain to the service program in Northwest Kansas. He is also president of the Thomas County unit.

The Colby doctor is presently the radiological consultant at St. Thomas Hospital.

Dr. E. E. Long, Humboldt, has recently opened a new office. It is called The Humboldt Clinic Building and was opened with an open house which some 750 persons attended.

Dr. Bernard Hall, Topeka, attended the Second World Conference on medical education which was held August 29-September 4, in Chicago, Illinois.

Dr. Joseph Satten, Topeka, visited the California correctional institutions recently.

Dr. Edward Greenwood, Topeka, taught a course at the University of Denver recently. His subject: "The Emotionally Disturbed Child in the Classroom."

NEW MEMBERS

The JOURNAL *takes this opportunity to welcome these new members into the Kansas Medical Society.*

John I. Davies, M.D.
K.U. Medical Center
39th & Rainbow Blvd.
Kansas City 12, Kansas

John M. Hansen, M.D.
K.U. Medical Center
39th & Rainbow Blvd.
Kansas City 12, Kansas

Henry M. Hardy, M.D.
K.U. Medical Center
39th & Rainbow Blvd.
Kansas City 12, Kansas

Henry D. Thomas, M.D.
Belleville, Kansas

Volunteers Selected for First Long-Term Simulated Space Flight

Volunteer Air Force pilots have been carefully screened and a group selected from which two men will be drawn for the first U. S. experiment in long-term simulated space flight, it has been disclosed by Lt. Col. George R. Steinkamp.

Steinkamp, chief of the Department of Astroecology for the Air Force's School of Aviation Medicine, said plans are being made to confine two of the volunteers in a space cabin simulator for a period of 30 days.

The simulator, a seven-ton device eight feet high and twelve feet long, is now 90 per cent completed at Minneapolis-Honeywell's Aeronautical Division plant in Minneapolis. It is scheduled for delivery to the school at Brooks Air Force Base, Texas, by the end of this month.

As soon as the equipment is thoroughly tested and operators are trained in its use, the first 30-day experiment will be conducted to record psychological and physiological stresses on men in space.

Despite the physical problems of living in cramped quarters for an extended period, Steinkamp said space medicine researchers expect the greatest stresses to be psychological.

The men who enter the cabin will be completely sealed off from the world to which they have grown so accustomed. Time will weigh heavily on their minds, and boredom will become their constant companion. The familiar day-night cycle they live by will be lost. Thirty days can be a very long time.

The space cabin simulator is the first of its kind in the free world in which two men can live for as long as 30 days in complete isolation from the world, closely approximating conditions imposed by space travel.

The astronauts will breathe and re-breathe the same air and drink and re-drink the same water.

Urine and all other forms of waste water are purified by a Honeywell-developed process which includes chemical treatment, filtering, super-heating, freezing, and final filtering through activated carbon.

Human feces and other solid wastes like hair or food particles will be dehydrated and burned in an incinerator and the gases produced disposed of with an afterburner. All that remains from this process is a small amount of fine ash.

They will find all of their human needs satisfied within the confines of the capsule. Their isolation from the world will be virtually complete.

The space medicine researcher said that despite the obvious rigors of the planned experiments, volunteers have been numerous. He said no serious psychological problems are expected during the first simulated 30-day space flight.

The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL *reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.*

Reader Protests to Doctors' Fees

It seems that many people hold doctors above criticism. Why?

You go to a doctor and he prescribes and charges for the prescription and the office call. If the medicine does not agree with the patient or does no good, you go back and pay for another prescription and another office call. This may go on for months or even years.

Now if a mechanic overhauls your car motor and it still does not work right he does the job over at no charge and he doesn't get paid for guessing what is wrong with the motor or for advice.

If a merchant even has the chance to tell you what size suit or shoes you need and they don't fit can he sell you another suit or pair of shoes and charge you for items again and refuse to take the others back? No, he fits you or you don't pay. If the items do not stand up he has to make it right.

Get Value Received

In any other profession you get value received or no pay.

Some say that a doctor's life is not his own. This is not true nowadays. A doctor takes his days off and some even leave their phone off the hook. Some say he goes out day and night on calls. This is also not true altogether. Unless it is an emergency he says take them to the hospital and he will see them the next morning. Yes, some do go out on emergency calls but we pay plenty for it. The mechanic is often called out the middle of the night too.

Doctors take their vacations oftener than people in any other profession, turning their patients over to some other doctor and often not taking the trouble to do that. You just hunt another doctor if you need one before he returns from his vacation.

Some doctors say they have to place their fees high as some do not pay and those that do pay have to pay part of the bill of those that do not pay. Does the mechanic do this? NO.

If you carry health insurance the bills are usually higher so in turn the insurance companies have to raise their rates until you can't afford the insurance.

Doctors wonder why people are in favor of socialized medicine. The doctors themselves are bringing that on.

Some doctors say people should take periodical checkups to catch disease in the early stages. Who can afford these checkups? Until they feel there is something radically wrong they naturally put it off.

It makes you wonder when a young doctor starts practicing and within a few years has a fine home all paid for along with extensive vacations and the best of cars. If they had charged only when they gave "value received" they would be as long in getting these things as the rest of us.

Few have nerve enough to speak out against them because they think they might need a doctor some time and they wouldn't feel the doctor would be too anxious to take care of them so the doctor keeps right on cleaning our pockets.

The old doctors are gone that had the hard life and never got rich.—Vincent Wilson, Dodge City, *Hutchinson News, August 30, 1959.*

Steps to Good Health

Everyone enjoys good health although some people are at their best when they can talk about their illnesses.

Good health can't be guaranteed, even with the

services of a reputable doctor. The patient has certain responsibilities if he wants to be well.

Dr. J. DeWitt Fox, a medical doctor, is editor of *Life and Health* magazine. He takes up the doctor-patient relationship and offers some advice that will get the best results for the doctor and the patient. He gives these 10 points for the patient to check if he wants to get more for his medical dollar:

"1. Select a physician in whom you have confidence and stay with him. 'Tramp patients' cheat themselves. It takes acquaintance with you and your family and knowledge of your earlier illnesses before your doctor can give his best advice concerning your present sickness.

"2. Be willing to talk. Tell the doctor as much as possible about your illness. Only as you tell everything can he localize your trouble.

"3. When your doctor is about to give you a medicine, be sure to tell him of any allergies you may have. This is especially important in regard to penicillin, for some 30 per cent of patients may have developed a sensitivity.

"4. Call your doctor early. If you have pain, call him now; don't endure it until 1:00 a.m. And this is not just because the doctor needs his sleep. He does, but you may need immediate care rather than a six-hour delay hoping things will clear up.

"5. Don't doctor yourself, then run to the doctor. If you have a new malady . . . don't take a cathartic. And don't take a neighbor's medicine or his advice. Do something worth while—see your doctor.

"6. Don't be a 'newspaper-clipper pest.' Your doctor is glad to hear of new developments in medicines, which he may have missed in the latest magazines because he was too busy delivering babies to read it. But he is greatly annoyed by the patient who comes in waving the clipping of a new diet guaranteed to cure athletes' foot and arthritis, or by the lady who insists on having a shot of this or that just because she read about it in the paper.

"7. Be intelligent about your symptoms. Learn to read a fever thermometer and tell the doctor exactly what your temperature is. Don't just say, 'I'm hot all over,' when you call him.

"8. When the doctor comes, have on hand the things he is likely to need—an enema outfit, an ice bag, hot-water bottle, nose dropper, eye dropper. Keep the number of your all-night druggist in your address book, in the event you need a prescription at 2:00 a.m.

"9. Be delicate when you ask your doctor for a consultation. He may have wanted to call in a specialist, but has held back lest doing so would frighten you. But if you gently say, 'Doctor, is there someone who could give us a little help to make things go a bit better?' the chances are he will gladly call in a consultant. He appreciates frankness.

"10. Money matters are wisely considered before surgery or special procedures are performed, rather than afterwards. This can sometimes save you dollars, as well as make the payment of the bill easier by opening the way for arranging an installment plan. In case the surgeon is high priced, you should know it beforehand. Nothing will break down doctor-patient relationships faster than misunderstandings over the bill."—*Arkansas City Daily Traveler, August 28, 1959.*

Ectoparasites in Kansas

A Kansas State University graduate student in entomology, John Poorbaugh, is currently studying the various types of ectoparasites in Kansas which may carry such diseases as Bubonic plague, typhus, tularemia, and Rocky Mountain spotted fever.

These ectoparasites (mites, lice, fleas, and ticks) live on wild rodents in numbers of from one to several hundred per animal, reports Poorbaugh. His is the first extensive survey of its kind in the state.

He explains that diseases carried by the ectoparasites—parasites living on the outside of animals—are transmitted from one rodent to another and may be transmitted to people.

The diseased wild rodent eventually may come in contact with domestic rodents on farms and suburbs of cities. The ectoparasites which carry disease organisms may thus be transferred to human dwellings, pets, and farm animals. From these the human might contract the disease.

The K-State graduate student is making use of ectoparasites found on rodents being trapped for a population survey of Kansas rodents also conducted at K-State. In addition, he plans a study of rodent ectoparasites found in the Tuttle Creek dam area north of Manhattan. He will start this study before recreational development begins.

When the lake starts to be filled, the rodents may take refuge in the homes and buildings around the lake's edge, thereby posing a potential disease problem if diseases are present in these rodents.

Poorbaugh explains that the danger in the Tuttle Creek area is no greater than in most other areas in the Midwest and Great Plains, but says such a study is needed in view of the large number of recreation-seekers expected. In fact, the probability of diseased rodents is less here than in many of the Rocky Mountain and western areas.

In obtaining parasites, the rodents are first brushed and bathed to remove the parasites. The washings then are filtered, and preserved in alcohol. The parasites are mounted on slides and divided into one of the four groups—mites, lice, fleas, or ticks.

The more we know about the parasites the better the possibility of stopping the diseases they carry. Leptospirosis, the present dreaded livestock disease, may possibly be linked with rodent ectoparasites.

Blue Shield

Consideration being given to a "No-Fee-Schedule."

Plans are presently in the discussion stage concerning the possibilities involved in a "no-fee-schedule" pattern for future programs of Kansas Blue Shield. The comparatively new idea of a "no-fee-schedule" approach is being studied by the Blue Shield Board and staff members, and the committee on Blue Shield Relations. Further discussion of this new idea in Blue Shield programming will take place this fall in meetings with the District Relations Committees.

Fee Schedule Approach Not Meeting the Need

The weaknesses of the fee schedule approach to cope with the problems of financing health care have long been obvious. The fee schedule method has resulted in high percentage payments in low cost areas, and low percentage payments in high cost areas. There is no way to remedy this with a uniform statewide schedule. The adoption of a higher dollar schedule to more adequately meet charges in a high cost area results in over payments in low cost and low charge areas.

No-Fee-Schedule: What Does It Mean?

The Wisconsin Physicians Service (Blue Shield) last year adopted what they termed the no-fee-schedule program, and while no detailed report is available on their experience, it can be described as involving payment of physicians' services on a percentage of charge basis. The major question is whether physicians as a group can find a way to control the increased cost of such a program. Without adequate professional control, an inflationary trend could conceivably develop that could defeat the program.

No-Fee-Schedule Advantages

The elimination of the schedule would make it possible to change the basis of coverage to a percentage level and therefore, assure high percentage coverage in every case. The percentage level of coverage would also fit in with the idea of deductibles which represents the greatest potential source of rate control but has been difficult to apply to a fee schedule approach.

Provided that physicians accept the responsibility of providing necessary review committees, the program would have a necessary control of inflation. This is needed. It would be expected that the general cost of medical care would go up, but it should not go up to any greater extent than would be justified by the general cost of living increase.

There was a time when it was commonly assumed that the American public was opposed to bigness in business. Nothing could be further from the current truth. The average American admires bigness and he particularly likes bigness in business, if there are present two all-important ingredients—genuine competition and a feeling that there is "full disclosure." What the public is really fearful of is not bigness itself, but the potential misuse of the power that bigness makes possible.—*Elmo Roper*

The lover of intelligence must be patient with those who cannot readily share his passion. Some pangs the mind will inflict upon the heart. It is a mistake to think that men are united by elemental affections. Our affections divide us. We strike roots in immediate time and space, and fall in love with our locality, the customs and the language in which we were brought up. Intelligence units us with mankind, by leading us in sympathy to other times, other places, other customs; but first the prejudiced roots of affection must be pulled up.—*John Erskine*

Insulin Treatment in Psychiatry. Edited by Max Rinkel, M.D. and Harold E. Himwich, M.D. Price $5.00. 380 pp. Philosophical Library, Inc., New York, New York.

Included in this volume are papers presented at the International Conference on the Insulin Treatment in Psychiatry held at the New York Academy of Medicine, October 24 and 25, 1958.

This volume contains the current thinking of some distinguished psychiatrists about the use of insulin treatment. The most interesting papers, related nostalgically, are those which describe the early days of the somatic therapies. Some of the papers have a "back to insulin movement" quality to them and others more realistically consider this treatment in terms of its becoming obsolete as the result of introduction of drugs, together with increasingly widespread use of psychotherapy and milieu therapy.

It is doubtful that the book will influence many pschiatrists to ignore the trend of the times to return to a form of somatic treatment, which, though quite effective, has been superceded by less dangerous and less costly modern treatment.—*H. T. H.*

Annals of the New York Academy of Sciences. Vol. 74, Art. 3. Price $5.00. 407-1028 pp. "Chlorpropamide and Diabetes Mellitus." Published by the Academy, March 30, 1959.

This volume is composed of sixty-eight separate papers which were given at a conference on "Chlorpropamide and Diabetes Mellitus" held and supported conjointly by The New York Academy of Sciences and Charles Pfizer & Co., Inc. on September 25, 26, and 27, 1958.

The subject matter is divided among three categories which are:

Part I Pharmacological Studies
Part II Metabolic Studies
Part III Clinicometabolic Studies

The papers represent the results of the individual efforts of a large number of highly qualified and respected clinicians and basic research investigators in this country and from many countries abroad. It is obvious, at first glance, that it is a comprehensive treatment of the present day knowledge of the status of Chlorpropamide.

As would be expected, many of the papers pertain to the mechanism of action of oral hypoglycemic agents, a subject that is as yet, incompletely understood. Differences of opinion exist as to whether or not these agents exert their effect by beta cell stimulation and production of insulin. As brought out by several investigators, the ultimate action of these agents will probably go unsolved until the mechanism of action of insulin itself is completely understood.

Several of the papers are devoted to a study of insulin alone; others compare the metabolic effects of insulin, Chlorpropamide and other hypoglycemic agents. A good many of the papers are highly technical, especially those in the first two parts listed above. The majority of the papers, however, are in Part III and present information that is of practical value to any physician who treats patients with diabetes mellitus. Many of them relate the clinical experiences of well known authorities on the use of Chlorpropamide, with much discussion as to the indications, methods of, and contraindications to its use.

I do not hesitate to recommend this volume to all physicians who are interested in diabetes mellitus. I think it is especially valuable in that it is not a general review of a subject by one man, but rather represents the detailed experiences of numerous investigators.—*V. E. R.*

Elementary Statistics, With Applications in Medicine and the Biological Sciences. By Frederick E. Croxton. Price $1.95. 376 pp. New York, Dover Publications. Paperbound.

The quality paper-back reprint has had a great effect on the supply and use of books in recent years. A number of publishers are issuing extensive lists

in literature, philosophy, and history, and one in particular, Dover Publications, has applied the paperback technique to important out-of-print books in the sciences.

The book under consideration was first published in 1953 and has been widely used as a textbook in medical schools where a basic knowledge of statistics is considered necessary equipment for the physician. That such knowledge is essential to both the intelligent reading and writing of case studies and research reports is plain and Croxton's book should serve very well as a home-study text and book of reference. The author is Professor of Statistics at Columbia University. All the numerical illustrations are based on actual, not hypothetical, data.—*G.S.T.C.*

BOOKS RECEIVED

Books received by the JOURNAL OF THE KANSAS MEDICAL SOCIETY *are acknowledged in this column. Selections will be made for more extensive review in the interests of readers as space permits. Members of the Society, from time to time, review these books and their critique is presented in this section. The reviewers receive the complimentary book from the publisher for their efforts.*

SURGERY OF THE FOOT—By Henry L. DuVries, M.D., Clinical Instructor in Surgery, Chicago Medical School; Attending Surgeon, Columbus Hospital, Mother Cabrini Hospital, and Frank Cuneo Hospital; Chairman, Department of Surgery, Illinois College of Chiropody and Foot Surgery, Chicago. 494 pp. Illustrated. Price $12.50. The C. V. Mosby Co., St. Louis. 1959.

NOW OR NEVER: THE PROMISE OF THE MIDDLE YEARS—By Smiley Blanton, M.D.; and Arthur Gordon. 8°, cloth, 283 pp. Price $4.95. Prentice-Hall, Incorporated, Englewood Cliffs, New Jersey. 1959.

THE CARE OF MINOR HAND INJURIES—By Adrian E. Flatt, M.D. Price $9.50. The C. V. Mosby Company, St. Louis. 1959.

SYNOPSIS OF EAR, NOSE AND THROAT DISEASES—By Robert E. Ryan, M.D., William C. Thornell, M.D., and Hans von Leden, M.D. Price $6.75. C. V. Mosby Company, St. Louis. 1959.

PRINCIPLES OF DISABILITY EVALUATION—By Wilmer Cauthorn Smith, M.D. Price $7.00. J. B. Lippincott Company, Philadelphia. 1959.

ANESTHESIA FOR INFANTS AND CHILDREN—By Robert M. Smith, M.D. Price $12.00. C. V. Mosby Company, St. Louis. 1959.

THE POWER OF SEXUAL SURRENDER—By Marie N. Robinson, M.D. Price $4.50. Doubleday & Company, Inc., Garden City, N. Y. 1959.

THAT THE PATIENT MAY KNOW—An Atlas for Use by the Physician in Explaining to the Patient. By Harry F. Dowling, M.D., Sc.D., Professor of Medicine, University of Illinois, and Tom Jones, B.F.A., Professor of Medical Illustrations, Emeritus, University of Illinois. 139 pp. Illustrated. W. B. Saunders Co., Philadelphia. 1959.

TRAUMA—By Harrison L. McLaughlin, M.D., Professor of Clinical Orthopedic Surgery, College of Physicians and Surgeons, Columbia University, New York. 784 pp. Illustrated. Price $18.00. W. B. Saunders Co., Philadelphia. 1959.

A DOCTOR DISCUSSES MENOPAUSE—By G. Lombard Kelly, A.B., B.S. Med., M.D. 16°, paper, 96 pp., with 14 illustrations. Patient—$1.50. The Budlong Press, Chicago. 1959.

PREVENTIVE MEDICINE—Principles of Prevention in the Occurrence and Progression of Disease. Edited by Herman E. Hilleboe, M.D., Commissioner of Health, State of New York Department of Health, Albany, and Granville W. Larimore, M.D., Deputy Commissioner of Health, State of New York Department of Health, Albany. 731 pp. Illustrated. Price $12.00. W. B. Saunders Co., Philadelphia. 1959.

CARE OF THE PATIENT WITH A STROKE—By Genevieve Waples Smith, R.N., M.A. A Handbook for the Patient's Family and the Nurse. Price $2.75. Springer Publishing Company, Inc., New York. 1959.

A technical bulletin on parasites and diseases of Kansas coyotes has just been published by the Kansas agricultural experiment station at Kansas State University, Manhattan.

The authors, H. T. Gier and D. J. Ameel, K-State zoologists, explain that parasites and diseases of wild animals are of importance to man because of transfers which take place from wild animals to man or domestic animals.

The authors point out that parasitism of coyotes also is of interest to wildlife biologists and plays a role in attempts at managing wildlife populations.

Over a period of 11 years, K-State scientists examined 1,850 coyote carcasses, and only about three per cent were found free of internal parasites.

By far the most common internal parasites were tapeworms, which were found in almost every animal. While the proportion of coyotes infected, the average number of worms to the coyotes infected, and the average number of worms to the coyote varied from year to year, numbers always were high. The average infection varied by years between 32 and 55 tapeworms to the animal. Tapeworms apparently had little effect on the health of the coyotes.

About three of every four coyotes had intestinal roundworms, half had stomach worms, and hookworms were found in small numbers in about one of every four coyotes.

While ticks were not numerous, those found were real, or potential carriers of Rocky Mountain spotted fever and tularemia.

Rabies has occurred infrequently in coyotes of Kansas.

We do not slip into happiness. It is strenuously sought and earned. A nation glued to the television screen is not simply at a loss before the iron pioneers of the new collective society. It isn't even having a good time. No society has ever spent as much as we do on drink and tranquilizers. Can one argue that this is evidence of universal fun?

—*Adlai Stevenson*

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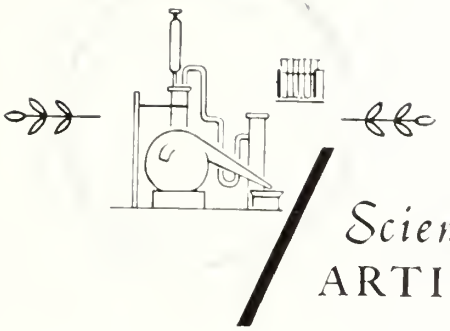

Scientific
ARTICLES

Active Treatment of Cerebral Palsy

A Report of the Work Being Conducted by the Institute of Logopedics, Wichita, Kansas

HENRY O. MARSH, M.D., *Wichita*

Introduction

The Physicians of Kansas have shown a mounting interest in the program for the cerebral palsied at the Institute of Logopedics. The Institute of Logopedics is an institution in Wichita for the correction of the speech-handicapped, and has earned a national and international reputation for exceptional work in this field. Because almost all children with cerebral palsy have a speech handicap, a special clinic for them was established at the Institute in 1948.

In this decade, 427 patients have been examined in the cerebral palsy clinic. Seventy-two children are currently on the active treatment schedule in occupational therapy and physical therapy. The program for the habilitation of the cerebral palsied has been expanded constantly, and improved as experience has revealed more effective therapeutic methods as well as some previous misconceptions and errors. The comprehensive program now provides speech therapy, medical supervision (Orthopedic and Pediatric), physical and occupational therapy, special education, and socialization.

The purpose of this report is to answer the most frequent questions and to supply additional information for those interested in this difficult socio-medical problem. No attempt has been made to be analytical, but special emphasis has been placed on our particular therapeutic approach to the problem.

It should be emphasized that the cerebral palsied children represent a fraction of the patients at the Institute of Logopedics. Although the proportion of patients with cerebral palsy has increased steadily, the Institute of Logopedics exists for the correction of any speech handicaps, and the vast majority of the speech problems are unassociated with cerebral palsy.

This article underscores the fact that in active treatment of Cerebral Palsy the Institute is dealing with complete human beings. A well-rounded program offering medical treatment, habilitation, speech training, education, and socialization is affording the optimum opportunity for these children to improve and be able to function in the everyday world.

The treatment of cerebral palsy has been undergoing a gradual change. This change is the result of the concentrated effort of many workers on a common problem. The common experience that resulted from confronting similar daily problems shifted the emphasis from passive to active treatment. The previous tenets of treatment were passive and consisted of (1) rhythm exercises practiced passively in time to nursery

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rhymes, (2) relaxation practice with the exclusion of physical and mental stimuli, (3) full control bracing, and (4) little or no surgery.

The treatment of cerebral palsy at the Institute of Logopedics has advanced along more active lines during the past decade. The active concept of therapy has withstood the test in the arena of daily living and has been found to produce far superior results. This approach parallels contemporary theories of education. A child learns best by doing and by undergoing his own personal experiences. Therefore, our efforts are concentrated on the personal physical accomplishment at the child's actual level of performance. This initial accomplishment, no matter how minor, forms the springboard for better future performances.

In evaluating patients with cerebral palsy, therapy may be directed most effectively if one considers the major long-term issues, which are discussed in detail below.

Motivation

Motivation is the inner spark that starts the human engine producing the power and drive that culminates in a physical act or accomplishment. The establishment of motivation in the cerebral palsied is the key to the entire problem. The first spark of motivation must be carefully protected and fed the proper amounts of fuel. The child then will enjoy a continuing desire to perform increasingly difficult independent physical acts.

Failure to establish motivation usually wells from one of several sources: (1) The child may be too handicapped, mentally or physically, in which case nothing can be done; (2) The therapeutic team may fail to cope creatively with the situation; (3) The child may lack the innate ambition and drive to work hard enough and long enough to succeed; (4) Motivation may be stultified by a complete parental or custodial bankruptcy of insight.

Family (sociologic) handicaps may establish limiting barriers which block motivation. Favorable physical home surroundings and mental atmosphere may have never been created nor permitted to exist. The parents may have failed tragically to appraise the child's ability realistically. This invariably forces the child into one of two characteristic developmental patterns.

In one such unrealistic pattern, the parents' optimistic goals far exceed the child's capabilities. Sheer physical inadequacy then blocks each struggling attempt to achieve these goals, and denies the child the necessary sense of accomplishments, parental praise, and recognition for a successful performance. The antithesis of this situation is as common and just as fatal to physical improvement. The parent, guardian, or therapist anticipates and performs every physical act for the child which might be too difficult. This method is neat and quick. The child, with all his needs satisfied remains totally dependent, without effort, complacently willing and happy to be waited on like a king on a throne. Either pattern presents a difficult and challenging family situation that complicates the already difficult problem of motivating the cerebral palsied child.

The cerebral palsied child, regardless of his degree of handicap, learns by doing. Each accomplishment motivates higher level efforts. This motivational process follows logical steps just as one climbs a ladder beginning with the bottom rung. For example, head-balance and control is the lowest performance level on the ladder of physical habilitation. The practice and establishment of head-control requires individually fitted chairs that stabilize the body and extremities. These chairs impart a sense of bodily security which the child must have. The child is much more cooperative and workable once head-control is established. When the child achieves this first goal, he is motivated and able to go on to the next step, sitting-balance.

Individual therapy in an atmosphere of group activity is an excellent climate for the production of motivation. The child is stimulated in this situation to hold his head up so that he may observe the general fun. This is the basic prototype situation that can be created in a myriad of forms to stimulate the child's physical maturation. In this manner a constantly higher level of performance can be demanded and achieved.

Physical Therapy

Passive physical therapy has been largely discontinued and replaced by active physical therapy. The traditional passive therapeutic approach was conscientiously followed for several years and received a thorough clinical trial. The results were disillusioning. We were unable to relate any significant physical improvement to passive rhythm exercises, relaxation practice or full control bracing.

The full control bracing technique, which is employed in many clinics, proved to be unsatisfactory in our hands. Encased in these braces like a knight in shining armor a child can be grasped and walked about like a wooden soldier. This proved, in our clinic, to be a frustrating experience for both the child and therapist. The basic principles of body balance, the simple concept of foot thrust against the floor, or the necessity of downward hand pressure on canes or crutches were never mastered or understood by children who were fully braced. There was no adequate way to teach these principles. These simple physical concepts must become integral reflexes or walking is impossible.

Physical therapy at the Institute of Logopedics has evolved about the four following points: (1) active exercises for involved muscles, (2) stretching of tight or contracted muscles, (3) supervised daily practice with physical therapy equipment, and (4) most important of all, teaching in a logical progressive manner the increasingly difficult physical accomplishments. These points require further elucidation.

Muscular weakness may be due to a cerebral defect, or muscle weakness may be secondary to overstretching by an antagonistic hyperactive muscle. The hip abductor is the prime example of secondary muscle weakness. The gluteus medius is frequently overpowered by hyperactive hip adductors and becomes nonfunctional; it can become serviceable through active exercises. The muscles whose loss of power is primary to a cerebral defect can be partially restored in a similar fashion. Hours of repetitive muscle exercises are necessary to restore these muscle action patterns and the functional capacity. Passive, then assistive exercises are employed initially to give the feel and control of a specific muscle action. The acme of muscle power is produced with progressive resistance exercises.

Tight contracted muscles must be stretched or lengthened. This is fundamental. Muscles must have an effective functional length before work can be performed. Muscle stretching is carried out by the therapist or the parents on a supervised home program. The most frequently contracted muscles are the hip adductors, hamstrings, calf muscles, forearm pronators and the wrist flexors. Surgical tenotomies and myotomies may be necessary and inescapable, as manual stretching is not always successful.

In the supervised daily practice with the physical therapy equipment, hours are spent observing and working with the child in his efforts to move on an exercise mat, crawler or rolling chair. It may prove necessary to contrive a play situation that will motivate self-propulsion. The following play situations have proven repeatedly successful in stimulating self-propulsion.

TV an Aid

All of our children have seen and enjoyed the Western TV programs with Matt Dillon and Wyatt Earp. In acting out these programs the children take the part of the desperadoes and are placed in the town jail. This is done by drawing a chalk line on the floor about the crawler or rolling chair. The child breaks out of jail by propelling himself across the chalk line. This situation is highly effective in motivating self-propulsion, as all children are anxious to emulate their heroes.

A second situation which is highly effective utilizes a fort constructed from a large corrugated cardboard carton. This fort is placed on the floor completely surrounding the child except for one side which is the gate. The child must then propel himself through the gate if he is to see what the Indians are doing outside the fort. If there exists any degree of innate inquisitiveness or spirit of play, these situations work well.

A physical and mental mutation occurs when the child realizes that he, as an individual, can be self-propelled. This spark of self-motivated physical independence must be sustained through progressive physical stages to the highest attainable level of development. This will vary with the degree of handicap and may be independent walking, crutch or cane walking, propelling a wheel chair with the hands, or a rolling chair with the feet.

The training program is further promoted by all imaginable types of equipment. Crawlers, upright individual control chairs, rolling chairs to be pro-

pelled by the feet, special wheel chairs, and standing tables are but a few examples. The child's needs are the criteria and stimulus for the construction of some new piece of equipment. Each stage of physical development requires equipment specifically designed as to size and weight for the particular child.

The last major point in our physical therapy program deals with teaching the child in a logical progressive manner the increasingly difficult physical accomplishments. This is an unremarked and unheeded basic phase of physical therapy and consists of establishing the level of physical development and then working up to the next level. This progressive training must be carefully supervised.

At any level of performance, multiple avenues of approach must be employed to teach mastery of a specific activity. As an example, the teaching of sitting balance, seemingly quite simple, is actually complicated because of the different normal positions of sitting and the various physical acts required to maintain balance. A child must be taught to balance his head, sit erect, recover his sitting balance, keep his feet flat on the floor, and, in fact, push with his feet against the floor to maintain balance. These inherent reflex acts must be taught individually to the cerebral palsied.

The child is ready for standing practice only after he has achieved sitting balance. Standing is begun with support for the legs, as head and trunk balance have been mastered previously in the sitting practice. The support for the legs is gradually decreased as independent standing balance is established. Finally, the child is ready for the most Herculean task of all, walking, which is balance in motion. This is the final goal and there are no short cuts. Parents must be counseled repeatedly in this progressive functional plan in regards to its background, reasons for being, broad implications, and final aims. This is imperative if wholehearted parental cooperation is to be obtained and the program to succeed.

Occupational Therapy

The hand is a complex piece of machinery possessing a matchless degree of facility of motion and sensory perception. Any disability of this complex structure creates a problem which is difficult to overcome or decrease. Traditional therapy relegated upper extremity training to the occupational therapist, and the lower extremities to the physical therapist. This was wrong and led inevitably to segmental analysis of the patient rather than integration of the whole child. This misconception has now been corrected and all spheres of training are correlated to reinforce each other. These two departments are now integrated so that the function developed and learned in one department will be applied in other spheres of activity. We believe, for example, that as a child develops greater proficiency in dressing himself, he will achieve greater skill in holding a crutch for walking. In a similar fashion, sitting balance taught in physical therapy will permit a higher degree of proficiency at a typewriter in occupational therapy.

Functional training in occupational therapy must be the paramount consideration. The ability to fingerpaint, draw a circle within a circle, or pile blocks is of value only if it aids in practicing reach and grasp. The neuro-muscular patterns of reach and grasp and hand-eye coordination are part of normal development but in the cerebral palsied these patterns must be taught. Until these neuro-muscular patterns are mastered the teaching of more complicated or involved physical procedures is but wishful and wasteful training.

The sphere of influence of occupational therapy should extend into the home through supervision of the child's daily activities of feeding, dressing, and self-care. Parents desperately need guidance in this realm. The therapist recommends and helps to construct the specially designed toothbrushes and eating utensils with special handles or grips. The clothing is checked to see that the buttons or hooks are readily accessible and that zippers are used wherever possible. Too often little or no thought has been given these problems so that a child who has the potential of self-care has remained totally dependent. This is a double calamity—the parents are burdened with extra work and the child is deprived of independent action.

Each accomplishment that promotes more normal and useful living and meaningful employment of the hands is progress in the right direction. The belief arises all too often in the parent's mind, consciously or unconsciously, that all necessary treatment and practice is received in the regular occupational therapy training period. This is fallacious, for the maximum physical potential can be realized only if the parents maintain an "around the clock" program at home. This is quite evident in the improvement among children whose parents or guardian have a sincere interest and participate actively in the care of the child. This statement is of course no less true for a handicapped child than it would be for a normal child.

Bracing

Bracing has become a stigma of cerebral palsy. Close your eyes and imagine a cerebral palsied child and you see the image of a helpless individual encased in heavy braces. Bracing may be a critical requisite, but all too frequently it is generously overdone. The weight and stiffness of large braces effectively anchor the child and eliminate any possibility

of self-locomotion. Braces do furnish secure and convenient handholds for the parent or therapist while the child is receiving therapy. Immobilized in braces of this nature the child can be goose-stepped about the house like a wooden soldier. The child's reactions to this type of walking are (1) complete frustration evolving from the suspicion that wooden soldier walking will be permanent, or (2) the child may be mesmerized into the belief that this is walking and be quite happy.

Tragically this robot walking may be doggedly continued by the parents well into the child's maturity. Certainly if walking were to have been learned by practicing this method it would have been established before age 20. In adulthood this type of walking demands an all-out physical effort due to the size and strength of the child. We have witnessed parents who literally have broken their backs physically, and their minds psychiatrically. A trying doctor-parent relationship arises when the attempt is made to alter fixed notions regarding this "walking." The change in treatment that restores the child to his proper functional level and decreases the bracing to a functional level may appear to the parent to be a backward step. The child must, however, learn to perform within his physical capabilities. Parents must accept a change after years of goose-step marching towards the mirage of independent walking. The child cannot learn to walk in this fashion.

We have progressively decreased the extent of individual bracing in the past ten years. However, braces which promote and facilitate self-activity are used extensively. Braces which require additional help to make them function have been largely discarded. Occasionally full control braces are necessary for a severely handicapped child who cannot otherwise use the standing table. All children practice standing several times daily if this is feasible. This, regardless of the final prospects of walking, promotes better body physiology.

The Frejka pillow splint, which was originally developed to treat congenital dislocations of the hips, is used extensively to prevent scissoring of the legs. The prevention of scissoring will make crawling, standing, propelling a chair, sitting, and in some cases, walking, easier. The common equinovarus deformity of the feet is controlled by short leg braces which produce a stable, flat, weight-bearing surface. Elastic twisters may be employed on small children to overcome the internal rotation deformity of the legs. A twister attaches to the shoe near the fifth toe and spirals up the leg through one turn to anchor at the pelvic belt. This device exerts a constant external rotation force while the child is standing. Short forearm braces which cock the wrists and hands into

functional position are the only braces of value in the upper extremity.

Surgery

The subject of reconstructive surgery in cerebral palsy has been the focal point of numerous polemics. Advocates of surgery optimistically employ reconstructive procedures, believing that any procedure is worthwhile that will possibly decrease the physical disability or improve the cosmetic appearance. Their patients run the gamut of orthopedic surgery with neurectomies, tenotomies, bony stabilizations, tendon transfers, and osteotomies.

Those among the conservative school, disillusioned and discouraged with surgical results, have placed almost exclusive emphasis on bracing, therapies, and education. They maintain that surgery is not an unmitigated blessing, and instances have been reported in which increased disability has been the patient's final surgical reward.

A neutral position exists for physicians who see elements of value in both viewpoints. Surgical procedures at times may be of extreme value. The orthopedist must adopt an optimistic outlook seasoned liberally with realism in regard to the anticipated

(Continued on page 504)

Nothnagel's Syndrome

As It Applies to Vasomotor Angina and Paroxysms of Hypertension

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As a result of observing two cases of paroxysmal pulmonary edema, chest pain, and systemic hypertension the term Nothnagel's Syndrome as defined by Paul D. White and Thomas Lewis was investigated. Nothnagel's 1867 paper entitled "Angina Pectoris Vasomotoria" is reviewed. His four cases complained of varied peripheral sensations, anxiousness and many disagreeable thoracic sensations. The wide symptomatology, the paucity of physical findings and the vague terminology used creates doubt regarding the existence of hypertension and even true angina in Nothnagel's cases during an attack. Comments by various authors on Nothnagel's four cases are presented and the problems of translation and semantics are discussed. The use of Nothnagel's name in referring to parasthesias and unilateral oculomotor paralysis is touched upon.

It is finally concluded that the term Nothangel's Syndrome when implying paroxysmal hypertension with or without angina pectoris was inadvisedly applied to a series of four ill-defined and confusing cases which troubled Nothnagel over ninety years ago.

Since the term Nothnagel's Syndrome will be discussed below, some preliminary remarks regarding Dr. Nothnagel are in order. Carl Wilhelm Hermann Nothnagel was born in Brandenburg in 1841 and died in 1905. He was a pupil of Traube and Rudolf Virchow in Berlin. From 1865 to 1868 he was Leyden's assistant at Königsberg and it was during this period of time the paper under discussion was written. He served as professor at Freiburg in 1872 and Jena in 1874. From 1882 to the time of his death in 1905 he was professor of medicine at Vienna. He was a gifted orator, an impressive lecturer, and a man of high ideals. A victim of angina pectoris, he stoically set down his own symptoms in writing just before his end. Dr. Nothnagel is remembered for his 24 volume encyclopedic *Handbook of Special Pathology and Therapeutics*. He first described universal anesthesia or absence of all sensations in the body in 1887. His favorite clinical themes were the diagnosis of cerebral diseases (in which he separated disease of the optic thalamus), and diseases of the intestines and peritoneum on which he wrote a classic monograph in 1898.

In standard texts and in the literature the term Nothnagel's Syndrome is rarely found. As referred to in Dorland's Dictionary, Jamison and Mortons Medical Bibliography, Kelley's Encyclopedia of Medical Sources, and Grinker's Neurology; Nothnagel's Syndrome implies a unilateral oculomotor paralysis with cerebellar ataxia and crossed paralysis.

To Paul D. White and Thomas Lewis, Nothnagel's Syndrome means general vasoconstriction with or without angina pectoris. This paper will be directed toward the latter interpretation. Other authors to be quoted later refer to Nothnagel's paper on vasomotor angina but do not use the term Syndrome. This communication was prompted by the observation of two cases characterized by paroxysmal attacks of acute pulmonary edema, chest pain, and associated hypertension. It was initially felt these patients might represent Nothnagel's Syndrome as referred to by Dr. White in his "Diseases of the Heart."

This paper's purpose then is to discuss and define the term Nothnagel's Syndrome as it applies to vasomotor angina and paroxysms of hypertension. Obviously the information to be relayed today has more historical and psychological implications than scientific importance.

In Paul D. White's fourth edition of "Diseases of the Heart" the following statement is made. "It is possible that vascular crises (coronary spasms) are at times a factor in the production of angina pectoris. When there is a general vasoconstricting storm producing paroxysmal hypertension with or without angina pectoris the condition has been called 'Nothnagel's Syndrome.' "

Nothnagel's Paper

In 1867 H. Nothnagel published an article entitled "Angina Pectoris Vasomotoria." He presented four cases; cases one, two, and four were males whose ages were 38, 39, and 46 respectively. Case three was a 63 year old woman. The principal symptoms com-

plained of were: a feeling of deadness, sleepiness or numbness of the hands and feet; stiffness of the extremities—especially of the hands and feet; coldness of the hands and feet; crawling sensations over the extremities; severe heart palpitations; and anxiousness. (See graph I.) The peripheral symptoms were usually noted to precede the central or thoracic symptoms. Less common complaints were dizziness in two patients, sweating in two patients, and paleness of the face of two. Case number two complained of clonic cramps in his extremities and a pressure in his neck. Case three complained of precordial discomfort, left arm pain, and epistaxis.

In graph II it is to be noted that the only finding characteristic in all four was paleness of the hands and feet at the onset of an attack. Case three was found to have a lowered pulse rate, whereas the other three had a normal or unobserved pulse. The radial pulse was described as "small" in case one and as "small in circumference" in case three. The "pulse wave" was observed to be lowered in height in cases one and three. In cases one, three, and four the attacks were almost always produced by exposure to cold. Case two generally developed attacks after drinking.

In Nothnagel's discussion he describes the symptom "Anxiety" more fully. It took many forms such as pressing, emptiness or chest fright, a feeling of nameless anxiety, and a feeling of expiring or dying. These symptoms were always located in the epigastrium or the precordial area. Nothnagel also states that frequently a numb sensation was noted in the heart region and that in one case it spread all over the left chest and at times into the left arm. Although describing only four cases he leaves one with the impression of having seen many more. At no time does he use the term "Pain" in describing the symptoms associated with anxiousness. These symptoms might well have represented angina as we know it today.

SUBJECTIVE SYMPTOMS COMPLAINED OF
GRAPH I

Case Number 1	2	3	4	
X	X	X	X	Deadness, sleepiness or numbness of hands and feet
X		X	X	Stiffness of extremities
X	X	X	X	Coldness of the hands and feet
X	X	X	X	Crawling sensations on extremities
X	X	X		Palpitations
	X	X	X	Anxiousness
X	X			Dizziness
	X	X		Sweating
		X	X	Paleness of face
	X			Clonic cramps
	X			Pressure in neck
		X		Precordial pain
		X		Left arm pain
		X		Epistaxis

PHYSICAL FINDINGS
GRAPH II

Case Number 1	2	3	4	
X	X	X	X	Paleness of hands or feet at onset of attack
		X		Lowered pulse rate
X				Pulse normal
	X		X	Unobserved pulse
X				Arterial radialis "small"
		X		Arterial radialis "small in circumference"
X		X		Pulse wave lowered in height
X		X	X	Attacks produced by exposure to cold
	X			Attacks produced after bouts of drinking
X				Cyanosis of nail beds
X				Temperature in extremities lowered
X				Face pale
X				Objective loss of sensation to pin prick

Nothnagel felt his cases were similar to those of Heberden and that his own term "Angina pectoris vasomotoria" was preferable to Heberden's term "Angina pectoris" since it more fully described the pathology. Nothnagel felt the basic pathology was in the nervous tissue of the heart vessels and not in the arteries or myocardium themselves. He supports this theory with the following points: (1) the peripheral changes precede anxiety and chest symptoms; (2) frequently early in the disease only peripheral symptoms were present; (3) patients feel better on walking around during an attack; and (4) relief is obtained by warm applications, avoidance of cold exposure, and medication directed toward vasodilatation. He also felt that peripheral vasoconstriction existed and that this in turn produced an increase in peripheral resistance with resultant increase in heart action and palpitation. Anxiety and pressure he felt to be secondary to palpitations.

Controversy

A review of subsequent literature referring to Nothnagel's paper was made. In 1902 Gibson discusses organic and inorganic causes of angina and under the inorganic group he lists neurotic causes which he further divides into reflex agencies, vasomotor instability, neuroasthenia, and hysteria. He felt that in every instance in the neurotic group there would eventually be found co-existing cardiac weakness. He stated that cases resembling Nothnagel's

1867 description were exceedingly rare. Also, in 1902 Sir James Mackenzie stated that, "in vasomotor angina the symptoms indicated a period lasting usually some hours, during which the patient was cold and chilly, with lividity of the extremities, and this symptom was attributed to a spasm of the arterioles, such as occurs in Raynaud's phenomenon. After a time this arterial spasm was followed by an attack of angina pectoris. On this evidence the vasomotor group of cases of angina pectoris was supposed to be established." Mackenzie felt that vasomotor angina existed in patients demonstrating paroxysmal hypertension but felt the symptoms in these cases were not similar to the symptoms in Nothnagel's cases. Later Mackenzie states that, "Many of the so-called cases of vasomotor angina pectoris bear no relation whatever to those cases described by Nothnagel, and the term is now evidently as vaguely applied as before Nothnagel's description."

Pal in 1905 felt there were two causes for angina pectoris. The first was organic and consistent with our thinking of today. The other cause he felt to be due to a neuralgia of the sympathetics produced over the cardiac plexus without pathology of the coronary blood vessels. His interpretation of Nothnagel's cases was that of peripheral spasm in association with coronary artery spasm. He felt that true angina pectoris was a cramp situation of coronary blood vessels together with ischemia of the heart muscle—the so-

Blood Pressure

The rarity of Nothnagel's syndrome was alluded to by Mackenzie in 1910. He stated that the term vasomotor angina conveyed to many that the blood pressure was elevated. His own experience failed to confirm this impression in those cases with cold and chilly extremities felt to resemble Nothnagel's patients. He states, "I have seen and carefully studied a few cases of Nothnagel's vasomotor angina pectoris and can positively state that they come under a different category from the more common forms of angina pectoris due to disease of the coronary arteries." Regarding angina and hypertension Levine and Ernstene in 1933 observed 23 cases of typical angina pectoris and observed a definite and significant elevation of blood pressure during an attack.

In 1918 Hirschfelder mentions J. Latham who reported a number of cases which in spite of the occurrence of intense anginal symptoms did not run the usual course ending in sudden death and to these he gave the name "pseudo angina." Hirschfelder stated that Nothnagel threw much more light on the subject and quotes Nothnagel as saying, "We must interpret this symptom complex to indicate we are not dealing with a disease which arises primarily in the heart, but that the symptoms of sternocardia are of secondary origin and are brought on by a general spasm of the arteries."

Lewis in 1932 presented four cases of angina pectoris in association with aortic insufficiency and discussed Nothnagel's four cases. He stated that the term "Angina Pectoris Vasomotoria" was not too well chosen, that Heberden used the term "angina" to signify a sense of strangulation with anxiety and that Nothnagel appeared to have used it in a similar sense. Lewis felt that Nothnagel's use of the term led to much confusion of ideas and distinct maladies. He felt that Nothnagel's cases probably had blood pressure elevation because of the pallor of the hands and feet although he admits this is inconclusive evidence. Lewis stated that facial pallor and sweating were not associated and thus he felt even more certain of hypertension being present.

It is to be noted, however, in graph I that cases two and three complained of sweating and graph II shows that in case one facial pallor was observed. Lewis suggested that Nothnagel's syndrome may be interpreted as constituting an exaggerated response on the part of the vasomotor system to cold exposure. In an earlier publication Lewis appropriately commented, "If we say that Nothnagel's syndrome is consistent with general vasoconstriction, and that this would explain the symptoms displayed by his patients, we probably state quite as much as is justified. It seems unreasonable that we should continue to base discussions of vasoconstriction upon what is largely guesswork while the essential facts are there for the collecting; or that we should continue to be saddled by terms which, by implying more than has been proved, tend to confuse our thoughts."

Mistakes Due to Semantics

It would thus seem apparent that confusion and differences of opinion exist regarding Nothnagel's four cases. In part this is a problem of semantics as evidenced by the use of such terms as "small arterial radialis," "reduction in circumference of the arterial radialis," "anxiety," "angina pectoris vasomotoria," and "pulse wave." It is entirely possible he meant something different from our interpretation today. His meaning of "anxiety" has been discussed above.

The presence or absence of hypertension during an attack (as described by Nothnagel in his article) is largely a matter of guesswork. The method of obtaining the pulse wave is not defined, however, the correlation between the pulse wave and the arterial blood pressure has long since been proven unreliable. It should be pointed out that Sigfried Karl Von Basch recorded the first blood pressure recording on humans in 1880 and that blood pressure recordings were not popularized until Riva-Rocci's improvement on the

mercury manometer in 1896. This was nearly thirty years after Nothnagel's paper. Lewis believed hypertension to be present on the basis of peripheral pallor and lack of facial pallor yet it is to be pointed out that in two cases facial pallor was subjectively complained of and in one case objectively observed. Dr. White stated in his fourth edition of "Diseases of the Heart," that "where there is a general vasoconstricting storm producing paroxysmal hypertension with or without angina pectoris the condition has been called Nothnagel Syndrome." Of interest is that White's reference is to an earlier article by Nothnagel in the same year and in the same journal. This article was entitled "Zue Lehre von den Vasomotorischen Neurosen" which translated means "For the Theory of the Vasomotoric Neurosis." On review of this article it becomes obvious that Nothnagel gives an almost classic description of what we now refer to as Raynaud's phenomenon, Raynaud having described this entity in 1862. With this in mind one can perhaps understand the similarity between Nothnagel's four cases and patients with Raynaud's phenomenon.

Final Status

With only four cases of rather wide symptomatology and ill defined physical findings to work with it seems unreasonable to retain the term Nothnagel's Syndrome which, as applied by a few authors over the years implies paroxysmal hypertension on a vasospastic basis with or without angina. It is likewise impossible to give a currently popular diagnosis to each of the four cases. Ninety years has seen tremendous medical progress and it is only fair to state that many maladies are better understood today than even 20 years ago. One could list several conditions which might explain any one or all of Nothnagel's four cases, however, that would be entirely beyond the scope of this paper.

I would like to express my appreciation for the invaluable help given to me by Kurt Reissmann, M.D., of the University of Kansas Medical Center, and Werner Langheim, M.D., Resident in Surgery at the Mayo Clinic. Without their help in translation and interpretations of the original articles, this paper would have been impossible.

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Cardiac Resuscitation

Part II—Plan of Treatment

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Success in Cardiac Resuscitation Depends on Restoration of Flow of Oxygenated Blood to the Brain Within Three or Four Minutes (All Other Considerations Are of Secondary Importance)

It is most important to separate the resuscitation procedure into two distinct steps:

1. The immediate emergency re-establishment of cardiac and cerebral oxygenation and
2. A more deliberate restoration of the spontaneous heartbeat.

Treatment of cardiac arrest should never be attempted unless at least two persons are present—one to attend to the respiratory problems and the other to massage the heart. One person cannot successfully carry out this treatment. Furthermore, resuscitation should seldom if ever be attempted outside of the operating room or emergency room.

Delay in initiating treatment, more than any other factor, accounts for failure to resuscitate these patients. Treatment begins when the diagnosis is suspected rather than proven. When the anesthetist sounds the alarm the diagnosis is not to be questioned. The surgeon and anesthetist should spontaneously and automatically move to initiate preconceived resuscitation measures.

One must overcome the natural hesitancy to accept without question and more careful checking this almost always unexpected and dreaded complication—especially during the more accepted and routine low-mortality operative procedures or during minor surgical procedures, to say nothing of the diagnosis following merely the induction of anesthesia before any incision has been made (See Table II, Cases 9, 17 and 23). The formidable treatment of open thoracotomy to expose the heart must be an automatic reaction when the diagnosis is suspected. Time is the factor of utmost importance. The heart will respond effectively to relatively light stimulation early, whereas even vigorous stimulation later will fail.

From the Departments of Surgery of the Veterans Administration, Wesley, St. Francis, and St. Joseph Hospitals and the Department of Anesthesia of Wesley Hospital, Wichita, Kansas. This study was supported by grants from the Leo McGuire Research Fund and The Sedgwick County Chapter of the Kansas Division of The American Heart Association.

First Step in Resuscitation—

CEREBRAL OXYGENATION

Success in cardiac resuscitation depends on the restoration of the flow of oxygenated blood to the brain within three to four minutes. All other conditions are of secondary importance. This is accomplished by artificially maintaining the circulation while the lungs are being artificially ventilated with 100 per cent oxygen. This is the sum and substance of the treatment of cardiac arrest. These two procedures can keep the blood oxygenation at a level sufficient to maintain life.

Cardiac arrest is the most common cause of death in the operating room. The death toll from this cause throughout the country and in our own state each year is a significant one. The great majority of these deaths are preventable. In the authors' opinion, physicians and hospitals have definite medico-legal responsibilities in cases of cardiac arrest—the former to attempt resuscitation and the latter to have available necessary apparatus, drugs, and instruments. The set-up should be checked frequently to make certain all is in readiness. The technic of cardiac resuscitation should be reviewed by surgical staffs at least once annually.

The surgeon requires but one instrument—a scalpel. All routine precautions are disregarded. It is not necessary to wear gloves. If the patient is wearing clothing such as an undershirt, incision is made through the cloth. Infection, comparatively speaking, is a minor consideration to be dealt with later. However, if the surgeon is working in a grossly contaminated field, he may pull his gloves off quickly before entering the chest (See Table II, Case 18). There is no need to be concerned about hemostasis. In fact, if on opening the chest one finds active bleeding and spurting arteries, he may well be thankful that cardiac action does exist, rather than chagrined by a

mistaken diagnosis. The incision is made in the left chest below the nipple from the sternum to the mid-axillary region through an intercostal space.

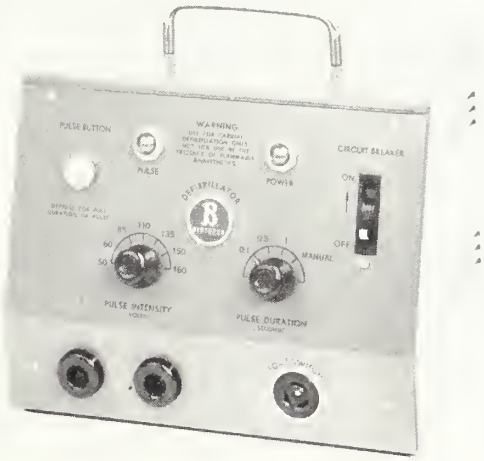
The various means and methods of massage should be mastered on an experimental animal. We have organized, with the aid of the local chapter of the American Heart Association, a practice experimental demonstration set-up which permits observation of the effectiveness of the massage by the surgeon. The best method for massaging the heart depends upon the size of the heart and the size of the surgeon's hands. One hand, the right or left, inserted as soon as the exposure permits, usually suffices. When the right hand is used, the thumb is usually placed anteriorly over the right ventricle and the other fingers over the left ventricle. When the left hand is used, the apex of the heart fits into the palm of the hand. Use of both hands may occasionally be more efficient —one in front of the heart and the other behind it. Or the hand may press the heart against the sternum. In small infants, pressure on the heart between the thumb and index fingers may be effective. The inability to compress the heart properly is second only to a delay in its compression as a major factor in the failures of cardiac resuscitation. An important feature is relaxation of the massaging hand—which must be an active process—performed quickly and precisely—to permit full dilatation of the heart for cardiac filling. Similarly, the systolic phase of massage must be deliberate—not slow and drawn out.

It is possible to rupture the heart, especially the upper and anterior right ventricular myocardium, by too vigorous manipulation[6] (See Table II, Cases 9, 10 and 17). This occurred six times in Wichita during a period of two years, including cases treated outside the operating room. Care must be taken to avoid pressure with the tips of the fingers. If the finger punctures the myocardium, the opening should be sutured quickly and massage continued. Successful resuscitation after such a perforation has been reported by H. Sloan, M.D., in Dr. Robert Hosler's "Manual on Cardiac Resuscitation" (Also see Table II, Case 17).

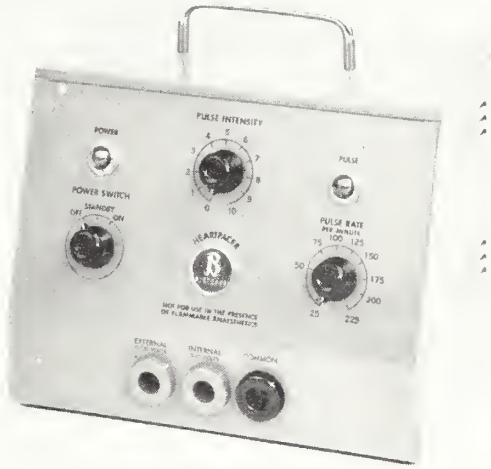
FIGURE 1

SPECIAL APPARATUS*

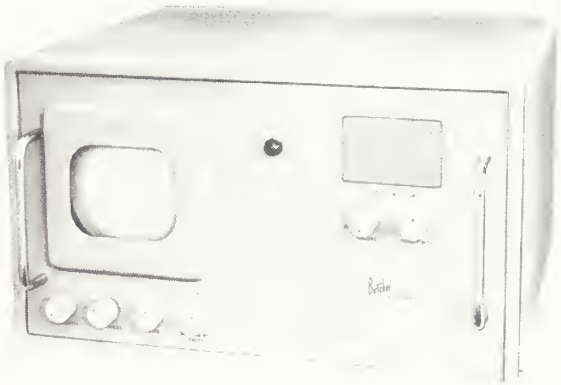
FOR CARDIAC RESUSCITATION



A. INTERNAL DEFIBRILLATOR. Ventricular defibrillator a *required* instrument in every cardiac resuscitation set-up. Special electrodes are available which assure against shock of the operator or burn of the heart.



B. CARDIAC PACEMAKER. This instrument is rapidly gaining popularity, particularly for use in the immediate post-operative period following cardiac resuscitation.



C. CARDIAC MONITOR. Attached to the patient during operation, this instrument aids in early and immediate diagnosis of cardiac arrest. It has gained considerable popularity for use in the immediate post-operative period following cardiac resuscitation.

* Courtesy the Birtcher Corporation, Los Angeles, California.

TABLE II

CARDIAC ARREST CASES
OCCURRING IN OPERATING ROOMS
WICHITA, KANSAS
1955-1958

1955

Patient	*Age*	*Sex*	*Procedure During Which Cardiac Arrest Occurred*	*Surgeon*	*Anesthetist*	*Died in O. R.*	*Recovered From Cardiac Arrest In O. R.*	*Sequelae and Remarks*
1	3	F	Division of patent ductus arteriosus.	1	A		Yes	No sequelae. Full recovery.
2	48	F	Exploratory lap. for chr. cholecystitis.	2	B		Yes	No sequelae. Full recovery.
3	66	M	Insertion of endotracheal tube following anesthetic induction. No operation performed. (Epidermoid CA vocal cord.)	3	A		Yes	Sequela: weakness.
4	57	F	Exploratory lap. for ileo-colic fistula (Inop. CA of colon).	4	B		Yes	Left hospital alive. No sequelae from cardiac arrest.
5	68	M	Inguinal herniorrhaphy.	5	A		Yes	Recovered from cardiac arrest but died 13 days later from acute internal hemorrhage (peptic ulcer). Was given cortisone.
6	48	F	Insertion of Hufnagel Valve for aortic insufficiency.	6	C		Yes	Recovered from cardiac arrest but died suddenly next day from acute internal hemorrhage (Hufnagel Valve slipped out of place).
7	20	F	Closure of patent ductus arteriosus. Cardiac arrest followed massive hemorrhage from aorta.	7	B		Yes	Died day after operation from effects of massive hemorrhage, multiple transfusions and surgically produced coarctation of aorta resulting from repair of opening in aorta.
8	45	F	Hemilaminectomy for ruptured cervical intervertebral disc.	8	C	Yes		Air embolism suspected as cause of cardiac arrest.

TABLE II—Continued

1956

Patient	*Age*	*Sex*	*Procedure During Which Cardiac Arrest Occurred*	*Surgeon*	*Anesthetist*	*Died in O. R.*	*Recovered From Cardiac Arrest In O. R.*	*Sequelae and Remarks*
9	42	M	Case of aortic stenosis (However cardiac arrest occurred during anesthetic induction.)	9	A	Yes		Cardiac arrest occurred during induction of anesthetic. Cardiac massage was undertaken immediately and carried on for one hour before resuscitation was accomplished. The right ventricle was ruptured during massage and successfully sutured.
10	61	M	Cardiac arrest in recovery room after partial decortication of right lung and drainage of pleural space.	9	C		Yes	12 days previously had had a right lower lobectomy for bronchiectasis. Oxygen was given immediately after diagnosis of cardiac arrest. The anesthetist massaged the heart within 3 minutes from the time arrest was discovered. After 25 minutes of massage the right atrium was ruptured. Died in recovery room.
11	60	M	Right pneumonectomy.	1	F		Yes	Full recovery. May be slightly euphoric.
12	3	M	T. and A.	10	A		Yes	Expired after seven hours.
13	17	M	Right pneumonectomy. (Bronchial adenoma in right main stem bronchus).	1	D	Yes		Death due to suffocation. A blood clot obstructed the left main stem bronchus after right pneumonectomy. While massaging the heart, clot was removed with a bronchoscope but it was too late for recovery.
14	5	M	Closure posterior palate.	11	A	Yes		Heart beat was restored and chest closed. Cardiac arrest recurred and chest was immediately re-opened. Second attempt was unsuccessful.
15	27	F	Emergency hysterectomy.	12	A	Yes		During the delivery of a 13 pound stillborn the uterus ruptured. Patient had massive bleeding and shock.
16	3	F	Ligation of patient ductus arteriosus.	1	A		Yes	Prior to cardiac arrest, pulmonary edema occurred in O. R. Patient died 4 hours after recovery due to respiratory failure.

TABLE II—Continued
1957

Patient	*Age*	*Sex*	*Procedure During Which Cardiac Arrest Occurred*	*Surgeon*	*Anesthetist*	*Died in O. R.*	*Recovered From Cardiac Arrest In O. R.*	*Sequelae and Remarks*
17	66	F	Intestinal obstruction due to incarcerated hernia.	13	E		Yes	Cardiac arrest occurred during induction of anesthetic. Heart perforated during massage. Perforation closed and resuscitation accomplished. After closure of chest, the obstruction was released and hernia repaired. Patient died 8 hours later in recovery room.
18	64	M	Transcolonic polypectomy.	6	C		Yes	Subsequent empyema (treated by chest drainage with recovery). Probably resulted from contamination from transcolonic polypectomy. No C.N.S. sequelae.
19	4	M	Pulmonic commissurotomy	1	C		Yes	The anesthesia was under hypothermia. During procedure, massive bleeding resulted from a tear of inferior vena cava prior to the cardiac arrest. Cardiac resuscitation performed. Patient died 12 hours later.
20	43	F	Exploratory laparotomy. Lysis of adhesions.	14	A	Yes		Peritonitis and obstruction followed hysterectomy. During the operative procedure, cardiac arrest occurred.
21	30	F	Mitral commissurotomy.	1	A		Yes	Died shortly after cardiac resuscitation.
22	37	M	Tracheotomy.	6	B		Yes	A gunshot wound of neck. Obstructed airways. Patient died 4 hours after cardiac resuscitation.
23	77	M	Internal fixation, fracture left hip.	15	C		Yes	Cardiac arrest occurred during anesthetic induction and was detected within 2 minutes. Resuscitated successfully after 4 minutes of massage. The internal fixation was thereafter accomplished. No sequelae.
24	87	F	Internal fixation, fracture left hip.	15	C	Yes		No massage.
25	29	M	Surgical treatment of abdominal gunshot wound.	2	B	Yes		The gunshot lacerated the superior and inferior vena cavae. Patient undoubtedly died due to massive blood loss.
26	50	M	Ventral herniorrhaphy.	16	B		Yes	No sequelae.

TABLE II—Continued

1958

Patient	*Age*	*Sex*	*Procedure During Which Cardiac Arrest Occurred*	*Surgeon*	*Anesthetist*	*Died in O. R.*	*Recovered From Cardiac Arrest In O. R.*	*Sequelae and Remarks*
27	53	M	Appendectomy.	17	A	Yes		During surgery the appendix was found to be perforated with localized peritonitis.
28	43	M	Aortic commissurotomy.	1	A		Yes	Ventricular fibrillation. Defibrillation delayed until defective defibrillator fuse could be replaced. Meantime cardiac massage was continued. Successful defibrillation and resuscitation.
29	3	M	Right inguinal herniorrhaphy.	5	E		Yes	Cardiac resuscitation was satisfactory. No sequelae.
30	65	M	Left pneumonectomy.	1	D		Yes	Cardiac resuscitation was satisfactory with no sequelae. Patient died 7 months after cardiac arrest due to extensive metastasis of bronchogenic cancer.
31	6	M	Craniotomy.	18	B	Yes		Craniotomy was carried out to evacuate a subdural hematoma. No response to cardiac massage.
32	4	F	Surgical correction of syndactyly middle and ring fingers, left hand.	11	B		Yes	Died in recovery room after cardiac rhythm had been restored by massage in O. R.

In shock, one of the quickest ways to give a transfusion is to elevate the lower extremities at right angles, thus utilizing gravity to introduce 500 to 800 ccs. of blood into the returning venous system.

Second Step in Resuscitation—

RESTORATION OF SPONTANEOUS HEARTBEAT

The immediate emergency re-establishment of cardiac and cerebral oxygenation, the first step in cardiac resuscitation, is accomplished by cardiac massage. Injection of drugs, if necessary, falls into the second step—the more deliberate restoration of the spontaneous heartbeat. The drugs recommended are discussed under "Cardiac Resuscitation Set-up." Again we wish to emphasize the importance of having a card setting forth the recommended dosages. The site of injection is of little importance, but the anteriorly-placed right ventricle is preferred because it does not bleed as easily as the atrium, it is more accessible and has fewer coronary vessels on its surface than the left ventricle, its wall is less thick than the left ventricle, and it does not have the large papillary muscles of the left chamber.

Electro-shock apparatus must be available for treatment of ventricular fibrillation (See Table II, Case 28), which occurs in about 10 per cent or more of the cases of cardiac arrest. While, under the worst of circumstances, the exposed wires of an electric cord wrapped in saline-soaked sponges may be used (in which case the operator should wear two pairs of rubber gloves), there is little excuse for failure to have available a ventricular defibrillator (See "Special Apparatus"). Imperceptible ventricular fibrillation may be revealed by an electrocardiogram, especially if the heart fails to resuscitate otherwise. The electrocardiogram should be disconnected at the time of shock.

We favor a high voltage of short duration (160 volts for 1/10 second in adult hearts). However, voltage may range from 60 to 160 volts, but 110 volts and 60-cycle alternating current is most practical because it is used almost universally in this country. A range of 1.5 to 3 amperes may be used, but 2.5 amperes applied for one second is satisfactory for most adult hearts. Voltage determinations differ among the defibrillators on the market, and the desired voltage for men, women, children and infants should be marked on each machine so that the operator, who may not be familiar with these determinations, may have some guide in this respect. Single shocks which fail to end the ventricular fibrillation are to be followed by a series of two or three rapidly repeated shocks. If this fails to accomplish the desired end, a series of six or eight short (1/3 second) shocks may be applied.

The heart musculature must be maintained in good condition by constant massage before and between the application of each shock. Care must be taken not to burn the heart. If special electrodes are not available to avoid such injury, saline-soaked 4" x 4" sponges may be placed between the electrodes and the heart musculature.

If there is any suspicion that massage is undertaken later than four minutes after the onset of the cardiac arrest, or if the heart fails to respond immediately, lowering the patient's temperature by the application of ice packs (particularly around the neck but also over the body generally) will help protect the brain from damage.

Treatment Outline

A suggested outline of treatment of cardiac arrest is set out below. A somewhat more detailed outline has been published by the Cardiac Resuscitation Committee of the Los Angeles County Heart Association. It is suggested that these outlines be posted in conspicuous places in the scrub rooms and included in the cardiac resuscitation set-up.

Each case must be individually evaluated before treatment is abandoned. Resuscitation attempts should be continued at least one hour after it appears that all hope is lost (See Table II, Case 9). Hosler reported complete recovery after eight hours of continuous cardiac massage.

After Care

Expert nursing constitutes the core of postoperative care. One must be constantly alert for cardiac arrhythmias and a recurrence of cardiac arrest. A cardiac

INSTRUCTIONS FOR TREATMENT OF CARDIAC ARREST

Respiratory:

1. Establish an airway.
2. Connect airway with oxygen supply.
3. Maintain artificial ventilation.
4. Lower head of table. Elevate legs.

Cardiac:

1. Enter left chest through an incision in interspace below nipple or breast extending from the sternal margin to the mid-axillary line.
2. Begin *massage of heart immediately.*
3. Improve exposure with rib spreader. If heart beat has not been restored at this point, open pericardial sac.
4. Massage the heart to produce a palpable peripheral pulse at the rate of 60 to 70 per minute.
5. Use cardiac emergency drugs as indicated.
6. In case of ventricular fibrillation, defibrillate. Then massage again.

(These instructions are to be carried out by the physicians present, be they interns, residents or members of the attending staff.)

monitor, with an alarm system, and a pacemaker, if available, should be attached. It is in this post-operative period that these instruments serve such useful functions. The monitor sets forth an alarm when threatening cardiac arrhythmias or cardiac arrest occur, and the nurse immediately flips on the pacemaker. Thus, precious seconds are saved, although doctors should be available to open the chest again if necessary. An emergency cardiac resuscitation set-up should be available at all times for this purpose, as well as a tracheotomy tray, to be used if the patient's tracheo-bronchial tree cannot be kept clear of obstructing secretions. Chest drainage should be used post-operatively to help assure full expansion of the lung. Elevation and wrapping of the limbs will aid in insuring an ample supply of blood to vital organs.

Antibiotics are used liberally. Levophed combats hypotension without accelerating the heart. Neosynephrin is also a satisfactory vasopressor drug. Adrenal cortical extracts are useful as the adrenals often suffer from deprivation of oxygen. Other drugs (atropine, caffeine, citrate, aminophyllin, calcium gluconate, quinidine, Cedilanid®, etc.) are used as indicated. An electrocardiograph is necessary to diagnose cardiac disturbances.

Acute cerebral edema is usually the cause of death in those individuals whose circulatory systems have been restored to normalcy. Twenty five per cent human serum albumin in 100 cc. amounts may be given intravenously every four hours as long as it appears necessary. Fluids, including blood, must be administered judiciously. The room should be kept cool. Hypothermia may protect the brain at this stage. A rapid rise in temperature usually indicates cerebral injury.

Special Apparatus

"Be not the first by whom the new are tried,
Nor yet the last to lay the old aside."
From Pope's "Essay on Criticism"

Cardiac Monitors have not been used in most hospitals, generally, for every patient during operation. However, monitors are available which give visual and audible warning of actual or impending cardiac arrest. Some models automatically start the external pacemaker when the alarm stage is reached. The monitor has found use following operation in resuscitated cardiac arrest cases.

External and Internal Cardiac Defibrillators are available. The external defibrillator is useful only if electrocardiographic tracings are immediately available at the time of cardiac arrest revealing the existence of ventricular fibrillation. The internal defibrillator under the circumstances existing generally in Kansas hospitals at this time, is a definitely acceptable instrument for which there is no substitute. It is the one special instrument above all others which every hospital must have available.

External and Internal Cardiac Pacemakers are available. The *external* pacemaker is of questionable value. Medically it is being used more widely in the treatment of Adams-Stokes seizures.[11] An inlying intracardiac pacemaker, using cardiac catheterization technic to place and keep the stimulating electrode in the right ventricle for more than three months has been used successfully in the case of a 76-year-old patient suffering such seizures.[12] The *internal* pacemaker is used on the exposed heart to eliminate the trauma of manual cardiac massage. By means of electrically conductive sutures* placed in the heart, in cases in which resuscitation is unsatisfactory or in which a recurrence of the cardiac arrest is expected, a pacemaker can be attached for control of the heart beat. In many larger centers such sutures are placed in the heart routinely after cardiac arrest cases which are resuscitated with difficulty or do not show a good strong heart beat after resuscitation.

Mechanical Respirators, such as the Stephenson controlled respiration unit, take over the respiratory control in long and difficult resuscitative procedures.

Comments Regarding Special Apparatus

The occurrence of cardiac arrest, in our opinion, necessitates thoracotomy for cardiac massage, regardless of whether the heart is in a state of asystole or ventricular fibrillation. Reliance upon such apparatus as external cardiac defibrillators or external pacemakers at this stage will result in a higher mortality. The fibrillating heart must be massaged to improve the oxygenation of the cardiac musculature before it will respond to defibrillating electro-shock. Reliance upon external stimulating and shock apparatus is likely to cost precious seconds. The various alarm systems, too, are not completely reliable, and cannot replace the constant attention of the anesthetist to the patient's condition. The internal defibrillator is indispensable.

The cardiac monitors and pacemakers have their greatest value in the immediate post-resuscitation period.

Medicolegal Aspects

"It is a crime to let any patient with a good heart and a good pair of lungs die in the operating room without any attempt at resuscitation."—Claude Beck, M.D.

It is believed that the first malpractice suit for failure to perform cardiac resuscitation measures in a case of cardiac arrest was tried in Cleveland, Ohio

(Continued on page 512)

* A special cardiac electronic suture for this purpose and an adaptor for attachment to a cardiac pacemaker are manufactured by Ohio Chemical & Surgical Equipment Co. of Madison, Wisconsin.

Parenteral Feeding

A Study of Fat Preparations for Parenteral Infusion

E. RULE OLSON, M.D., *San Francisco, California*

Since parenteral feeding has become a reality there has begun an earnest search for more usable preparations and better caloric materials. Fat in theory was a logical answer, as it has the greatest caloric density, exerts no osmotic pressure when in solution, and is not rapidly excreated by the body. However, the controversy over its utility as a parenteral emulsion was not easily solved. This study tells of many of the experiments, both animal and clinical, which helped answer this question.

History

The need for an energy dense parenteral fluid with a low osmotic effect has been realized by the medical profession for many years. Starting in 1679 there has been interest in experimental infusions of fat. However, it was many years before any real progress came in this field. As is usually the case in medicine, the answers came from many areas of learning and have been combined through the years into an increasingly clear understanding of the problem. In 1895, Leube suggested the oil vehicle which he used to inject camphor into cardiac patients might be of caloric utility for the body. In 1898, De Mesnil noted the protein sparing effect of fat in the diet. In the first decade of the twentieth century, numerous animal experiments with parenteral fat were performed. By 1918, emulsified fat had been given intravenously by Mansfield, but here again its administration was only as a solvent for camphor or quinine.[8]

The earliest attempts to provide patients with additional calories by intravenous fat were reported in Japan from 1920 to 1928 (Yamakawa and Nomura). These results were concurrent with animal success in this country. For example, several workers provided up to 25 per cent of the caloric requirements of rabbits with subcutaneous injections of lecithin oil emulsions. Holt, Tidwell, and Scott (1935) made the first attempt to provide intravenous calories by administration of fat emulsions in the United States. These tests were carried out in marasmic infants with evidence that the preparation was oxidized.[11]

Prompted not only by the need of a new nutritional supplement but also by the need for a method to administer a complete diet intravenously in order to study the production of essential metabolites by intestinal flora, much experimental work has been carried out in the past years. The results of this work have been encouraging, but have uncovered many problems which are yet to be completely resolved.

Utilization

One of the earliest studies of parenteral fat utilization was reported by Murlin and Riche (1915). These workers observed increased heat production and decreased respiratory quotient in dogs given emulsified lard. Baba, from 1931 through 1933, reported that his study of respiratory quotients of infused animals indicated the administered fat was burned for energy.[8] Gordon and Levine (1935) suggested evidence that intravenous preparations were oxidized in healthy infants. Utilization of infused fat emulsions was demonstrated by Narat (1937) in the extension of survival time when it was administered to starved dogs. By 1943 complete parenteral nutrition was accomplished in adult dogs receiving only water by mouth. In these studies, a preparation containing one calorie per ml. was infused along with other nutritional factors to provide about 40 calories per kilogram of body weight per day.[20] McKibbin and associates (1945) demonstrated the caloric utility of a preparation which produced no untoward effects during the injection periods. The laboratory reported that their fat emulsion prevented further weight loss and gave increased nitrogen retention. They also found that none of the infused fat was excreted in the urine or feces nor deposited to a special degree in any tissue. The character of the body fat remained unchanged. From these results, they concluded that the intravenous fat was metabolized.[19] The maintenance of nitrogen balance and prevention of weight loss for several weeks in adult dogs on caloric inadequate oral diets has since been repeatedly demonstrated.[5, 23, 24]

To approach the problem from a different aspect and to answer the arguments that previous experiments had measured factors other than true utilization, several groups of workers used radioactive

This paper was prepared while Dr. Olson was a Sophomore Student at the University of Kansas Medical Center.

tracers to follow the administered emulsions. Injected trilaurin in which the carboxyl group was labeled with C^{14} was studied in 1948. Seventy-one per cent of the C^{14} was recovered in expired air in four and one-half hours.[9] In another study, palmitic acid was synthesized with an atom of C^{14} at the sixth carbon atom:

$$C_{10}\,H_{21}\,C^{14}\,H_2\,CH_2\,CH_2\,CH_2\,CH_2\,COOH$$

This was then esterified with glycerol and an emulsion of the tripalmitin was made. In collecting the expired CO_2 and tabulating the C^{14}, 7 per cent was recovered in the first two hours and 50 per cent by 24 hours. Autopsy of the animals also showed that 50 per cent of the C^{14} found in the liver had been converted to phospholipids.[17] Deuterated fat was used in other experiments. Fifty per cent of the infused deuterium was recovered in the respiratory and urinary water within 24 hours. These experiments were more direct and provided unequivocal evidence of the oxidation of the parenteral administered fat.

Infusion into critically ill patients demonstrated utilization by negative nitrogen and potassium balance reversals even though the patients were on low or inadequate protein diets. In spite of the critical condition of these patients, no weight loss was noted during the time that fat calories provided an adequate diet.[28] Recently intravenous fat was shown to be as well utilized as oral fat emulsion. Both corrected negative nitrogen and potassium balances in healthy patients on subcaloric yet adequate protein diets.*[3]

Emulsions and Stabilizers

A stable infusion was necessary before any clinical or good animal experiments could be carried out. Certainly the untoward effects had to be conquered before fat emulsions could be utilized as a common nutritional supplement. It was speculated that a preparation which would resemble chyme in particle size (less than one micron) and dispersion would be the most satisfactory, as the body was already prepared to handle such material.

A variety of factors which are recognized to influence the behavior of colloids were considered in an attempt to produce the required dispersion of fat (an immiscible substance of low density), into an aqueous medium. These factors include the charge, concentration of the dispersed fat, specific gravity, particle size, and interfacial tension.[4] It is sufficient to point out here that stabilization of a fat emulsion requires the particles to be highly dispersed and stable in this state. There is a great tendency for such emulsion to "break" so that the preparation must be considered not only in its original form but also as it will be affected by heat, mixing with salts (equivalent to a .85 per cent sodium chloride solution), storage, and rough handling. Until recently it seemed improbable that any such an emulsion could be produced by simple mechanical means. Stability was made possible, therefore, by using an emulsifying agent. These were of two types: surface active wetting agents and hydrophobic materials. Specifically the stabilizer had to meet strict requirements. It had to be nontoxic, retain status quo through autoclaving and storage; the stabilizer-fat mixture had to be nontoxic and also economical and therefore commercially feasible. Considering the two types in general, the first (surface active wetting agents) are often toxic and cause hemolysis. The second type (hydrophobic colloids) seemed to provide the most success.

Particle Size

Particle size did not advance too difficult a problem as with a high pressure (3,000 to 4,000 pounds) homogenizer purified, relatively pyrogen-free material was possible at particle sizes near one micron. The stability of such preparations, however, was and is the cause of much difficulty. Purified soybean phosphatides were used in early work (along with a great host of others) and their clinical trials were fairly successful and are considered so today. With the advent of World War II, the work along these lines was greatly stimulated and a mass of animal and clinical tests heve been conducted since that time.

Lecithin and related phosphatides although most frequently used are acknowledged to be relatively unstable. Frost demonstrated that spontaneous hydrolysis occurred upon standing in solution. It was noted by Geyer and associates that a vasodepressor substance which was not present in freshly prepared phosphatides seemed to develop on standing in contact with air. Fractions with low depressor activity were either poor emulsifiers or affected by autoclaving. The stability of corn oil and coconut oil emulsions used by Mann, Geyer, Watkin and Stare in 1949, when evaluated as to their pyrogenic reaction formation, was not considered satisfactory. The mechanism of these reactions was not understood, but they appeared to be nonbacterial in origin. Brown, Ware, Slanker and Zinsser (1954) published their belief that nonionic surface active agents, such as "Pluronic F68," might be the answer to these problems of ill effects and chemical and physical stability. Samples of the fat emulsion were stable even when dextrose, normal saline, and gelatin were added. These samples were well tolerated except in a few cases of pain on injection, tremors, vomiting, and bleeding.[16]

Other agents that have been employed to emulsify fat for parenteral use include bile salts, polyglycerol ester of fatty acids, gelatin, fattyacid esters of polyhydric alcohols or sugars, cerebrosides, organic esters of phosphoric acid, substituted amines, and many

*Potassium balance was restored more than the nitrogen balance.

others.[8] In spite of all effort, no completely satisfactory fat emulsion has been produced with any of the above mentioned stabilizers. However, many have been found which give a low incidence of untoward reaction and have thus been used with some excellent results.

Some new ideas for the preparation of fat emulsions have been published in recent years. Payne, Lizzarine, Brot and Beal reported the preparation of a colloidal fat suspension in 1955. Fat was dissolved in absolute alcohol and added to pure water with agitation. This mixture was evaporated to recover the alcohol and reduce the volume to give the desired concentration. After filtering, the particle size was found to be less than 250 millimicrons. This preparation may be autoclaved as prepared or with a mixture of salt or dextrose. This sterilized product was reported stable to storage and satisfactory for infusion. No untoward effects were observed in any of the patients tested. This certainly would seem to be a great advance. The difficulties encountered in the use of a stabilizer are completely avoided. However, there have been no reports on its use since that time.

Shafiroff and Mulholland published a recent report concerning work they had carried out in the preparation of an "instant" fat emulsion. Clinical trials were not satisfactory, but the idea is sound and is being further explored. Such a preparation would eliminate the problem of stability during storage.

Untoward Effects

From the earliest attempts to the most recent reports the administration of fat has been plagued with untoward effects. The complete list of these effects would be far too protean to mention. The discussion will include only the more frequent changes. For the sake of both clarity and brevity several arbitrary classifications must be made. The effects may first be divided into two main groups, the first including those which have been solved, and the second those which are still uncontrolled. The second grouping may be further subdivided into four general types of response.

I. Resolved
  A. Aseptic peritonitis on intraperitoneal injection
  B. Pain on subcutaneous injection
  C. Cellular reaction
  D. Pulmonary embolism
II. Unresolved
  A. Pyrogenic reactions
    1. chills
    2. fever of less than four degrees Fahrenheit
  B. Blood pressure
    1. vasodepression
    2. flushing
  C. Blood cell changes
    1. lowered platelet count and prolonged clotting time
    2. decreased hemoglobin, hematocrit, and red blood cell counts
    3. increased cellular fragility
  D. Physical Discomfort
    1. nausea
    2. back and chest pain
    3. dyspnea
    4. headache
    5. blurring vision

The peritonitis and subcutaneous pain encountered in the use of fat emulsions in this first group are related in the most part to unsuitable preparation and unsatisfactory route of administration.[27] These have generally been avoided in more recent studies. The miliary cellular reaction of discrete, noncaseating necrotic, granulomatous appearance were seemingly either due to phagocytes becoming filled with fat or to a reaction to the foreign lipid. This was not believed to be inherent in fat emulsions *per se*, but specifically due to an unstable emulsion and the resulting embolism.[21] This was borne out by the same laboratory, and more satisfactory results with a new preparation were published the following year.[19] The host of early references to pulmonary embolism most probably can be explained by unstable emulsions.

Slight pyrogenic reactions often reported to be accompanied by a chill have been incriminated by most investigators as the most frequent untoward effect. Explanations for the pyrogenic effects of fat emulsions have been as numerous as the symptom itself. The reaction appears not to be caused by bacteria.[22] Neptune, Geyer, Saslaw and Stare pointed out that febrile state probably is not due to the rapid metabolism of the infused caloric rich material (as had been suggested by the other workers). They cited the results of a clinical study of nine seriously ill patients in whom no reactions of any kind were observed, either initially or after repeated feedings. These patients, in spite of obvious rapid utilization of the infusion, showed no elevation in temperature. It was suggested that the temperature regulating mechanisms of the body would not allow such a rise due to simple rapid metabolism. Even such rapid energy exchange states as thyrotoxicosis show only negligible changes in body temperature. Creditor related the blood changes he investigated (discussed below) to the febrile response. Feeling that fat infusions may be hemolytic in nature, he pointed out that diseases associated with acute intravascular hemolysis are characterized by the occurrence of fever. Waddell and associates considered both the emulsifier and a nonspecific colloidal phenomena to be in some part responsible for the fever. Thermogenesis was correlated with particle size by Brown and others,[16] and rabbit experiments by Becker and Grossman suggested pulmonary trapping of the fat was the basis of the rise in temperature. Fever, whatever the cause,

is in general not persistent and has produced no permanent effect.

Early Papers

Many early papers gave no mention of a vasodepressor response. This may be explained by the fact that soybean phosphatides do not have such an effect on rats or rabbits, and only a slight effect on dogs, while on man and cats the emulsifier shows active depression. The depressor substance is not found in freshly prepared emulsions but develops on standing. Shafiroff and Mulholland reported slight (10 mm. Hg.) elevation in blood pressure which was not correlated with particle size or sample age. All these reactions were short-lived and produced no after effects. Waddell, *et al.*, reported that the soya bean stabilizer caused a vasomotor change which elevated the systolic pressure while having no diastolic effect.

In studies of human patients Johnson, Freeman, and Meyer noted lowered platelet counts and prolonged bleeding time in association with intravenous feeding of fat emulsion. Creditor reported significant decreases in hemoglobin, red blood cell counts and hematocrit in a group of normal dogs after one to two weeks of daily intravenous infusions. He believed the explanation to be hemolytic anemia. This response could arise from the action of surface active emulsifiers, the fat itself might alter the interface between the erythrocyte and its environment, or free fatty acids in the infusion or liberated after infusion might become saponified and act as a surface wetting agent. In vitro, he demonstrated increased cellular fragility by subjecting the cells to mechanical stress. This test was carried out in the lipemic plasma, for if the cells are washed, no abnormality is seen. From this fact he concluded that the change in the red blood cell was not irreversible. As has already been mentioned, he suggested that there was direct correlation between the hemolytic and thermogenic properties of fat emulsions.

Physical discomfort has been reported with various emphasis and frequency and is most affected by standards of observation. Waddell, *et al.*, postulated visceral ischemia as the basis for back and chest pain, but no other specific explanations have been offered for other discomforts.

An excellent report of the typical findings of large scale clinical tests is found in a publication by Jordan, Wilson, and Stuart (1956). Excluding minor temperature side effects, the incidence of untoward reactions was 38 per cent and of these only six per cent were considered severe enough to stop the infusion. Back pain, flushing, chest pain, and dyspnea are usually apparent after only a few drops of the infusion had been given. All were transitory and stopped on discontinuing the preparation. In most cases the infusion could be started again with no ill effects. Chills and associated pyrexia did not occur before 100 to 300 ml. had been administered. If they did develop, a 15 to 20 minute rest period often was enough to allow continued infusion. Headache, nausea, vomiting, arthralgia, and blurring of vision were rarely observed before 500 ml. had been given. Seventy per cent of the cases in study were accompanied by elevation of temperature, but these were never really serious.

All of the untoward effects can be explained by one or a combination of four basic principles. Kinsell, *et al.*, suggested that an overload of the enzyme systems might well precipitate ill effects and advised a slowing of the rate of infusion. Waddell, Geyer, Olsen, Andrews, and Stare, working with fat emulsion, noted all of the reactions previously reported by Nissin after administration of colloidal iron directly into the blood stream. Jordan and associates postulated that nature of the colloidal reaction might be histamine in the early phases and an overloading of the reticulo-endothelial system in late reactions. Intravascular hemolysis must also be considered as an explanation for these untoward effects.[6] The reactions to repeated injections have not been well investigated in man, but the immediate reaction must be assumed to be due at least in part to a physiological factor within the patient. In no other way may response differences to various administrations of the same batch of emulsion in the same patient be explained.

Value in Man

The theory behind fat emulsion infusion is evident. Obviously a caloric deficiency which must be corrected by parenteral fluid therapy is of no particular problem in a reasonably well nourished patient for a limited period of time. It does become a problem in a patient with weight loss, who cannot or should not consume food by mouth.

The caloric containing materials usually available for parenteral use—glucose solutions, blood and its derivatives, and protein hydrolysates, do not provide enough calories in a reasonable volume. In order to raise the caloric level to a proper standard, the patient would drown in his own fluids. For example, a liter of five per cent glucose or protein hydrolysate yields only 200 calories. On top of this, the protein, if burned for energy, is of no value in body repair as a building block of tissue protein. Blood, for all practical purpose, has no immediate caloric utility. Dilute solutions of alcohol, invert sugars, and fructose have been tried in the search for a better caloric yield and although useful, have not answered the problem. Of all of these, alcohol has the greatest caloric density (seven calories per gram) and is a sedative and an analgesic, but there is evidence it may not be wholly metabolized. It cannot be given to

patients in shock or with demonstrated liver damage.

All of the above mentioned materials, except blood, are excreted in the urine or feces. By slowing the rate of infusion this may be decreased, but in so doing, additional strain is placed on both patient and attending staff. About 1,000 calories can be administered daily by these methods. Basal metabolic requirements of the average healthy adult is about 1,500 calories and this need often increases in disease. It, therefore, follows that fat with a high caloric density is logically an answer to the problem.* Another obvious advantage is that fats do not exert osmotic pressure and may be given in high concentration without the danger of thrombosis of the veins. For example, a 15 per cent fat emulsion with five per cent glucose gives an isotonic mixture containing 1,600 calories per liter. This compares with a 10 per cent glucose solution which besides being hypertonic gives only 400 calories per liter.

Fifteen Per Cent Emulsion

Such a 15 per cent fat emulsion was shown to be well tolerated in nine patients of the seriously ill, depleted category. No untoward reactions of any kind were observed and the patients lost little or no weight during its admission.[24] In 1952 Van Itallii, Waddell, Geyer, and Stare published an account of fat emulsion therapy in one case of complete intestinal obstruction. This patient was fed for 67 days entirely by the intravenous route until he was able to take oral nourishment. He was given 82,000 calories of which 42,000 calories were derived from 36 injections of fat emulsion. It was their belief that this patient would not have survived the illness without the additional caloric intake. They found no damage to the liver or erythrocytes, and concluded from their own, and other reports, that clinical administration of fat by intravenous method was an actuality. Others like Levenson, Lounds, and Morris agreed and helped stress the fact with reports of effective use of fat emulsions to provide high caloric intakes for burn patients. Kolff pointed out that protein feeding or inadequate caloric intake was deleterious in uremic states and suggested fat was probably more useful than carbohydrates. Parenteral feeding with intravenous fat emulsion was recommended by Van Itallii, *et al.*, in surgical patients in the later phases of convalescence where adequate caloric provision is essential.

Clinical Use

Concentrations of from 10 per cent to 30 per cent fat emulsions plus 4.3 per cent glucose to make isotonic solutions provide 1,200 calories to 3,200 calories per liter. Amounts up to five grams per kilogram of body weight have been given to adults and up to six grams per kilogram of body weight to a seven week old infant.[33] Fifteen per cent emulsion was completely satisfactory in nine critically ill patients.[28] It is important that if protein is to be given by the same method the best results are produced when the two are given at the same time.[1]

According to the findings of Kinsell, *et al.* 20 grams of fat per hour for six hours exceeds the tolerance of the average adult, but 10 grams for the same period and at the same rate was easily tolerated. Too rapid infusion apparently "overloads" the fat catabolic and storage enzyme systems.

Fat diets have been shown to decrease urinary volume and might, therefore, be contraindicated in some renal or cardiac diseases.[34] Patients with hepatic dysfunctions or adrenal insufficiency do not tolerate infusions as well as others, and if the emulsions are to be given it should be administered with added caution. Immediate postoperative patients also do not tolerate the fat as well, possibly due to altered hepatic function caused by the general anesthesia or because of adrenal depletion from the operative stress.[13] It has also been shown that although daily caloric intake is considerably increased immediately after the operation, there is no apparent change in the patient's progress for the first few days.[34]

Benadryl® (20 miligrams intravenously) is reported to stop back and chest pain and dramatically end dyspnea in many patients when the symptoms are caused by fat emulsions. Aspirin or Empirin® is generally sufficient to combat headaches. Dizziness can be prevented by keeping the patient in bed for 30 to 60 minutes after the infusion has been completed.[13]

The possibilities in therapy of burn patients and uremic states has previously been mentioned. Fat emulsions also hold considerable promise as the vehicle for intravenous administration of fat soluble drugs, especially vitamins. Here not so great a volume is injected and thus there is not so high an incidence of untoward effects. As an example, vitamin K preparations have been shown to be a strong antidicoumarol agent. Studies in man demonstrated that a prolonged prothrombin time due to dicoumarol may be reduced to the safe range within ninety minutes.[14]

Discussion

Definite proof of body utilization of the infused preparations has been given by radioactive fat studies. The definite proof of human utility, however, came some years later. Many workers, convinced that a proper emulsion would be of use in parenteral feeding, began to solve the problems of stability and compatability. This they accomplished by using various wetting and hydrophobic agents with high pressure homogenizers. No completely satisfactory prep-

* Fat has nine calories per gram, protein and carbohydrate have four calories per gram, and alcohol has seven calories per gram.

aration has been produced with the use of a stabilizer, but recent incomplete reports of a physical process have been encouraging. In the latter procedure, alcohol is used as a solvent for fat, then mixed with water, and finally removed by evaporation. This achieves so small a particle size (250 millimicrons) that the preparation has great stability.

Untoward effects have been a constant problem in fat emulsion administration. The reactions in general are very similar to symptoms seen on infusion of colloidal suspensions such as colloidal iron. The stabilizers used have also been incriminated as the cause of the ill effects. Both factors have been in some measure controlled, and it would seem there is hope that the reactions they produce may be completely eliminated by further study.

Concentration, infusion rate, and proper mixtures with sugar and salt have been investigated. These clinical results, although not extensive, present facts upon which safe widespread administration may be based. Certain types of patients have been found to be especially sensitive to emulsions and immediate postoperative patients have been shown to receive little or no benefit. Fat preparations have also been used as excellent vehicles for fat soluble drugs.

It would seem that the administration of fat emulsions is a possibility with present knowledge and that commercial production of the best preparation will come in the near future. It is improbable that fat will replace dextrose as the most common infusion, but it may well become standard operating procedure for long term intravenous feeding.

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Active Treatment of Cerebral Palsy

(Continued from page 485)

final surgical results. A pessimistic attitude would condemn children capable of gratifying surgical improvement to their deformities and disabilities. This is a greater sin than experiencing an occasional poor surgical result.

A limited number of surgical procedures have proven effective in cerebral palsy. Joint fusion is a successful procedure for deformed, unstable feet, or for flexed, contracted wrists. Tendon transfers are doomed to ignominious failure if the transfer involves a change in muscle function or joint action. However, it may be helpful simply to shorten and transfer a tendon insertion so that one joint is bridged, as in the Egger's transplant at the knee. Neurectomies and tenotomies undertaken after contemplative muscle and joint analysis can result in improved function and can decrease the possibility of joint contractures. These procedures, although technically simple, are not innocuous. Achilles tendon lengthenings have converted "apparent" equinus foot deformities into the far more disabling calcaneous deformities. This catastrophe stems from failure to recognize that the feet are not in true equinus but are simply reflecting hip or knee flexion deformities. Correction of the primary problem will restore the feet to their proper weight-bearing relationship. Obturator neurectomies and adductor tenotomies are indicated in "hopeless" cases to facilitate personal hygiene and simplify nursing care.

Reconstructive procedures should be reserved for children proven capable of improvement on a training program. Ambulatory, self-sufficient children may be benefited by surgery for a specific functional or cosmetic goal. A normal mentality is a desirable, but not a rigid, surgical criteria. The final goal is to make these children as self-sufficient as possible.

Chemopallidectomy has been tried by other workers in cerebral palsy. The permanent ablation of basal ganglia function has potential application in severe tension athetosis. Chemopallidectomy is still an investigative procedure, for long-term case studies are as yet unavailable. Although excellent results have been reported in a few cases, there is a three per cent mortality rate and a 30 per cent clinical failure rate associated with this procedure.

Medicine

Each year, like the burgeoning flowers of spring, enthusiastic reports of new medicines with the most salubrious effects on the cerebral palsied appear in the medical journals. These medications have uniformly failed to stand the test of clinical reanalysis, and we have never been able to approximate reported improvement rates. All the cerebral palsied children at the Institute of Logopedics are kept under close medical supervision. This situation creates an ideal testing ground for drugs. The double-blind method for drug administration has been employed. The medications are administered by a physician who is not permitted to know which is the placebo and which is the active drug. Both drugs are then administered with equal caution, and the result is a fair clinical trial. Glutamic acid, carbon dioxide inhalation, Tolserol, Flexin, and Paraflexin have failed under these test conditions to exert a beneficial effect on cerebral palsy. We are of the unalterable opinion, however, that a muscle relaxing drug will be discovered. Therefore, with this sanguine outlook, we plan to continue testing each drug that offers a reasonable assurance of success.

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If we consider men and women generally . . . there is only one situation I can think of in which they almost pull themselves up by their bootstraps, making an effort to read better than they usually do. When they are in love and reading a love letter, they read for all they are worth. They read every word three ways; they read between the lines and in the margins. . . . They may even take the punctuation into account. Then, if never before or after, they read.

—*Mortimer J. Adler*

U. S. Savings Bonds, Series E for growth, Series H for income, now yield 3¾ per cent on all issued since June 1, 1959. Both principal and interest are guaranteed by the United States Treasury and they do not fluctuate with the market.

Committee
REPORTS

Defective Hearing in Children

Part I—Lay Audiologist

C. W. ARMSTRONG, M.D., ***Salina,*** **Editor**

A series of six articles on Defective Hearing in Children will be printed in the *Journal* in the next several issues. These articles were prepared by C. W. Armstrong M.D., Salina, Kansas, for the Committee on Conservation of Hearing and Speech. The committee members are V. R. Moorman, chairman, C. W. Armstrong, J. A. Budetti, R. A. Draemel, E. L. Gann, C. L. Gray, W. P. McKnight, E. E. Miller, Ruth Montgomery-Short, W. D. Pitman, R. R. Preston, G. O. Proud, R. E. Riederer, and M. J. Ryan.

The titles of the articles will be Lay Audiologist, Defective Hearing in the Preschool Child, Defective Hearing in the School Age Child, Interpretation of Audiograms, Evaluation of Clinical Data, and Conclusions.

In the evolution of preventive medicine in our State, slow and progressive changes occur usually after consultation with physicians. This is true in the school programs to detect children who have hearing losses that interfere with their ability to hear and therefore to learn.

For the past several years, a new school program has been operating which is worthy of the attention of Kansas physicians. It is hoped that the program for detection of hearing losses will be well received by physicians because it represents an attempt to assist in a problem of steadily growing proportions. The school audiologist is an individual who represents a group of laymen who are interested in the hearing problems of the school population. The audiologists have varying degrees of training and ability. The quality of work done, therefore, extends over a range. The range varies from a rather crude screening of the hearing capacity of the child (consisting of how well he hears a 4,000 cycle tone) to a rather complete examination of the child's hearing-communication capacity in terms of not only audiometry but also an assessment of speech reception of the individual.

This range of talent is represented, in general, by four groups. First, there are teachers who are assigned to help perform physical examinations on school children annually and test with whisper and spoken word the child's ability to hear. Others of the same group are using a simple form of the audiometer. Second, there are school nurses under the direction of the local Boards of Education who have

This is the first article in a series of six prepared by the Kansas Medical Society Committee on Conservation of Hearing and Speech and edited by Dr. C. W. Armstrong, Salina. The next article will appear in the December issue of the JOURNAL.

been given basic training with the audiometer. Third, there are audiometric technicians trained by the Department of Special Education of the State of Kansas for public school work. Many physicians have come in contact with one or more persons of these groups as well as the fourth group which is more highly trained. It is composed of the speech therapist who is trained in both audiology and speech therapy. The first reaction to the initial contact with members of these groups has been one of surprise to local physicians and there will be more physicians surprised as members of this group make their more or less unexpected appearance in new localities.

These individuals comprise the beginning of a new professional subsection of medicine. They are willing workers who are dedicated to their duties of locating, screening, and assisting the child with poor hearing to a source of help. At the present time, an outline of ethical conduct is beginning to develop.

Following the original screening in hearing, the child whose loss appears to be severe enough to interfere with his or her education is referred to the family physician by the person making the hearing test. If something is known by the doctor concerning the background of the referring examiner, he will have a clearer picture of the situation. If he knows the work to have been of the simplest form, he will know that a rather complete survey will be needed to assess the patient's condition. If he knows the examination to have been only an audiogram, he will want to make a brief audiogram re-check for record purposes and proceed to other forms of testing and examination. However, if he is fortunate and knows that one of the men or women with extensive formal training has done the tests, he will be able to accept the records sent to him at face value and proceed as if the audiogram had been performed by himself or by a technician in his employ.

Gross tests for hearing such as the watch test, whispered voice, spoken voice, and tuning forks cannot be calibrated and have a low degree of retest reliability. At the present time when used alone, they are considered unsatisfactory for good clinical work. In the event that the family physician feels that the scope of hearing assessment is outside his normal zone of interest, he may with good ethical conduct refer the patient to an otologist or a fellow physician, who is interested in otology, to obtain audiometer tests and consultation as to recommended treatments.*

It is well known that there are localities where there are no certified otolaryngologists and the burden of a reasonable amount of otology must fall on the shoulders of those general practitioners who have equipped themselves to assume the burdens of this amount of otologic work.

The problem of evaluation of a child's hearing loss lends itself to either good or poor public relations for the physician to whom the child is first referred. If he is not prepared to adequately evaluate the hearing and make definitive recommendations, he should refer the problem to a qualified physician when he becomes aware of the reason for the consultation.

(To be continued in the next issue of the JOURNAL.)

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* For those who are interested in obtaining a low priced useful audiometer, it is suggested that the Ambco Otometer, manufactured by the Ambco Company, Los Angeles, California, and priced at approximately 150 dollars is approved for screening purposes by the Committee on Conservation of Hearing and Speech as of October 26, 1958. Other audiometers with which more complete testing can be done are available.

A. M. A.
13th Clinical
Meeting

DALLAS

December 1-4

Maternal Mortality

The patient is a 24 year old gravida V para IV who died with certificate diagnosis of "uremia due to lower nephron nephrosis following a transfusion reaction which occurred after a Cesarean section for placenta abruptio." The general level of medical and hospital facility in the community was good. The infant in this pregnancy died about 20 minutes after delivery.

The patient's medical history was not significant except for the obstetrical episodes. Of the four previous pregnancies, one progressed to eight months, the others delivering at earlier stages, the present one terminating at 27 weeks. The first child was hospitalized for "kidney poisoning" for the first three months of life. The second died in the neonatal period and was thought to have been jaundiced. The third was jaundiced but survived. The last child was grossly erythroblastotic.

Prenatal care was initiated in the first trimester and was adequate both clinically and from the point of laboratory procedures. As had been the case in previous pregnancies, the patient's blood was found to AB positive.

At 27 weeks of pregnancy, the patient was admitted to the hospital because of spontaneous rupture of the membranes. She was kept at bed rest for three days at which time bloody discharge commenced. On the fourth day definite bleeding developed. By the end of the fourth day the physican felt that the amount of bleeding was sufficient to require the delivery of the patient and that she did not represent a likely candidate for induction, therefore should be delivered by section. The fetal heart was not positively heard during this day. The doctor's feeling on the matter was supported by informal consultation in the hospital but the actual performance of the Cesarean section was deferred for several hours because of the lack of availability of a surgeon. The patient's blood was crossmatched with that of several AB positive donors and although the donors' blood proved to be compatible in saline, none would match in albumin. During the section, dextran was administered and a pint of blood from the donor whose blood showed the least agglutination on crossmatch was given. The patient was operated in the evening and by the next morning was severely jaundiced and was oozing blood from the mucous membranes and incision. For the following week, the jaundice continued and the patient was managed by dehydration consisting of intravenous fluids in the amount of the previous day's output (100 to 300 cc approximately). The patient improved and was able to be out of bed and around her room by the 12th day at which time evidence of cerebral irritation appeared and, subsequently, the patient went into convulsions. A comatose condition with increasing fever ensued and she expired on the 17th postoperative day. A subsequent check of her blood indicated that the patient was actually Rh negative. The patient's blood and the typing technique was studied by the reagent company providing the material for typing and crossmatching in the hospital. The company recommended certain changes in the procedure and the materials in the effort to obtain more accurate reporting in the future. An autopsy was not obtained because of the feeling that the death was due to the metabolic disturbant from the lower nephron nephrosis.

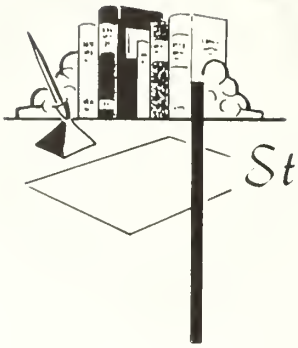
Committee Opinion

The committee believed that this was an avoidable obstetrical death. The history should have indicated to the physician the likelihood of an Rh factor problem or a ABO problem which would have led to more complete and illuminating studies before delivery. It was the feeling of the committee that every obstetrical patient should have blood typing with each pregnancy. Certainly, any blood of questionable compatibility should not be given as a transfusion. The incidence of all kinds of transfusion reactions in this country is approximently 5 per cent and this possibility must be kept in mind in the giving of any transfusion.

Classification

Maternal death, obstetrical, avoidable.

One of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas.



Student
THESIS

Quantitating Acute Pulmonary Hypertension in Dogs

THEODORE G. HOSTETLER, M.D., ***San Antonio, Texas***

In our work on the experimental production of chronic pulmonary hypertension in dogs by the repeated injection of carborundum particles intravenously over several weeks, it was observed that the rapid infusion of small amounts of this embolic material caused acute pulmonary hypertension with right ventricular dilatation and death. But, if a sublethal dose was given, it could be repeated over several weeks until many times the acute lethal dose had been given. An attempt has been made to quantitate the lethal dose in respect to time, size of the dog, and pulmonary pressure.

Review of the Literature

Since pulmonary embolism in man is quite frequently fatal and still the object of speculation, it has been the subject of much research. Qualitative studies have been done on animals to determine the effects of pulmonary emboli. Few papers were found listing the quantities of material necessary to produce symptoms or death. A wide variety of embolic material has been used by many people for many reasons. Table I lists the embolic materials which have been studied. These are divided into three groups. Group I are massive emboli capable of blocking the main pulmonary artery. Group II are intermediate in size and Group III are those that block the arterioles and pre-capillaries.

This is one of a group of theses written by fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group pledged to be the best by the faculty at the school. Dr. Hostetler is interning at Fresno General Hospital in Fresno, California.

TABLE I

Embolic Substance
- Group I (Massive Emboli)
- Autogenous Blood Clot
- Catheter With Balloon Tip
- Venous Catheter
- Penrose Catheter
- Soft Paraffin
- Air
- Group II (Intermediate Size)
- Pea Seeds
- Poppy Seeds
- Filter Paper Fibers
- Group III (Arterioles and Pre-capillaries)
- Starch Suspension
- Glass Beads
- Carborundum
- Lycopodium Spores
- Barium Sulfate Suspension
- Fats
- Human Amniotic Fluid

The lethal doses reported in acute experiments on dogs using various emboli are given in Table II. W. H. Knisley injected 0.20-0.25 gm/kg of 50-150 microns glass beads in rabbits and found this to be a lethal dose. N. A. Halasz and J. P. Marasco found a total dose of 2 cc. of liquid omental fat was fatal in most of their dogs in 15 minutes and all were dead within one hour. None of the investigators sited in Table I attempted to correlate the body weight of the

animals with the pulmonary artery pressures or the lethal doses.

Mechanisms of death in pulmonary embolism are still speculative especially since there is the possibility that some emboli pass through the lungs via arteriovenous shunts to produce effects elsewhere in the body. Such pulmonary arteriovenous shunts have apparently been demonstrated in a few instances. There is by no means agreement as to what alterations in physiology occur as a result of emboli. A controversy has existed for decades over the presence or absences of reflex contraction of other vessels stimulated by particles locally, by the larger pulmonary arteries, the right auricle or ventricle, or the great veins. There are many supporters to the belief that such reflexes are not present, but that the mechanical factor of obstruction is sufficient to explain the sudden rise in pulmonary arterial pressure, the reduced systemic blood pressure and death. An equal number feel that some type of reflex mechanism is present that potentiates the effect of obstruction of the embolus by vascular spasm. A third and, admittedly, less likely possibility is the liberation of some toxin or humoral factor. Thus, the three possibilities for the acute hypertension following embolization are mechanical, reflex, and humoral.

TABLE II

Embolus	*Dose*	*Survival Time*
Starch	0.5 cc	2-5 min.
Barium Sulfate (sat'd sol.)	1.5-3.5 gm. (2 dogs took 5 gm.)	———
Glass Beads (60-420μ)	5-8 gm.	2 hours

Saddle Embolus

Experimental work indicates that a single embolus is fatal to an experimental animal only if it is a "saddle embolus" obstructing the main pulmonary artery. The clinical fact that a complete right or left pneumonectomy does not alter the pulmonary arterial pressure significantly is often cited. The point at issue is the effect of miliary emboli on the vital functions of the host. Perhaps miliary emboli have far-reaching effects from the following evidence. First, at autopsy small emboli are frequently found in the lungs. Second, it has been observed that papaverine seems to have beneficial effect in the treatment of pulmonary embolism. Third, in experimental animals the injection of barium sulfate suspensions into one lobar artery of rabbits and dogs produces a rise in pressures in the other lobes, although others have been unable to confirm this. The fact that small emboli are found in the lungs at autopsy is no indication that they were the cause of death. Similarly, the experimentally observed action of papaverine on smooth muscle is no indication that this drug relaxes pulmonary vessels in spasm since these vessels may have been of normal caliber and papaverine merely dilated them further. Dr. W. D. Holden has actually seen papaverine increase pulmonary arterial pressure thus contributing to the load of the already overworked right ventricle. Similar effects of papaverine have been observed in our laboratory. A. H. Niden and D. M. Aviado observed the effects of size of glass beads on the pulmonary arterial pressure in dogs. If glass beads greater than 200 microns in diameter were used, they saw an initial increase in pulmonary artery pressure followed by a leveling off and stabilizing at that level. In glass beads less than 160 microns in diameter, two responses were seen. First, there was a prompt rise in pulmonary artery pressure then seconds later was another gradual rise of less magnitude. They postulate the smaller beads penetrate deeper into the pulmonary vasculature and obstruct smaller vessels. At this site is the origin of reflex activity which, they believe, accounts for the second rise. They explain the initial rise on mechanical blockage of the pulmonary vessels. I have observed as has W. H. Knisley that small emboli tend to clump together as they enter the blood stream and even single particles have been seen to be coated with a white precipitate immediately after entering the blood stream. This makes it more difficult to be certain minute emboli stay small and do not become larger by clumping.

Another objection to the use of miliary emboli is the possibility of the particles passing through the lungs and causing additional effects outside the lungs. As mentioned above, arteriovenous shunts may be large enough to allow small particles to pass through. Suspensions of starch and barium sulfate have been demonstrated in the abdominal aorta of rabbits after embolization.

Pressure Changes Signals

If reflexes are present, what are their pathways? D. Whitteridge describes at least one type of fiber that appears to signal pressure changes in the pulmonary arterioles or capillaries. He believes these are the fibers that are concerned with pulmonary embolism although he offers no definite proof. J. J. Byrne studied vessels under 20 microns in diameter in the lungs of rabbits. He used barium sulfate with particles less than five microns in diameter. If there was no vasoconstriction the particles would pass through the lungs and lodge in the rest of the body. When vasospasm occurred, the particles were trapped

in the arterioles. The control animals after embolization had 20.5 arterioles per low-power-field (LPF) filled with emboli. After tetraethylammonium and tolazine only 6.9 and 3.7 arterioles, respectively, had emboli. His conclusion was that using five micron emboli in rabbits there was sympathetic activity associated with it which can be blocked by tetraethylammonium and tolazine. Others would agree with this, but the dissenters are numerous. V. V. Parin in his work on open chested cats found a "depressor reflex" in systemic circulation mediated by the vagus. The work of G. E. Hall and A. H. Ettinger does not seem to substantiate this.

A physiological vasodilator of the pulmonary bed is oxygen. Conversely oxygen lack results in vasoconstriction although no evidence exists that anoxemia is responsible for the increased pulmonary artery pressure seen following embolization.

The neurogenic role in pulmonary embolism is still unknown, but perhaps vasoconstriction occurs by mechanisms not involving nerve reflexes. J. H. Comroe found by injecting serotonin in the jugular vein of dogs, he could raise the pressure in the pulmonary artery. He postulated chemoreceptors, located in the capillary or venule side of the pulmonary circulation, exist that are sensitive to serotonin. He postulates the breakdown of platelets around the embolus liberates serotonin into the area which activates the chemoreceptors. A. M. Rudolph and M. H. Paul also believe serotonin is a potent vasoconstrictor in the pulmonary bed. It is well known that in anaphylaxis there is intense vasospasm in the lungs of guinea pigs and rabbits. John Irwin observed this to be true with egg albumin in in vivo experiments.

Materials and Methods

Eight to 13 kilogram mongrel dogs, de-wormed, de-loused, and kept isolated two weeks prior to use were anesthetized with sodium pentobarbital, 25 mgm/kgm. Endotracheal intubation was used. A silica carbide, carborundum, grid size 50-90 microns was used. Infusions were made into the right external jugular vein through a 2 millimeter bore polyethylene cannula. The cannula was connected to a "T" tube. To one limb of the "T" tube was attached tubing which drained a 50 cc. reservoir. Physiological saline was used to suspend the 0.5 gm. aliquots of carborundum. Manual stirring was necessary to keep the particles in suspension. The mixture drained into the dog by gravity. Another bottle of saline was connected to the "T" tube and was used to wash the particles out of the tubing into the vein.

All pressure recordings were made on a Sanborn Multi-Channel machine by the use of a Statham strain gauge. Simultaneous electrocardiograms were recorded.

Every seven minutes 0.5 gm. of carborundum was injected into the dogs until they died. Death was defined as the time breathing ceased although the EKG recorded a cardiac contraction for 2-4 minutes afterwards. The time interval of seven minutes was chosen arbitrarily. (From past experience, after this length of time the dogs seemed to stabilize.)

Results

Table III lists the number of the dog, its weight, the number of 0.5 gm. doses infused, the survival time after the first dose, the lethal dose (LD) expressed in gm/kg and the LD as mgm/kg/min. From 1.0 to 5.0 gm. of carborundum was necessary to kill the dogs although the majority died after

TABLE III

Dog	*Weight of Dog*	*Number of 0.5 gm. Injections*	*Total Dose*	*Survival in Minutes After 1st Injection*	*LD g/kg*	*LD mg/kg/min.*
227	12.9	10	5.0	63	0.39	6.2
228	11.1	5	2.5	28	0.23	8.2
229	10.2	5	2.5	28	0.25	8.9
231	13.0	6	3.0	35	0.23	6.6
232	10.8	7	3.5	49	0.32	6.5
233	8.7	2	1.0	11	0.12	10.1
234	9.8	5	2.5	34	0.26	7.6
235	10.2	5	2.5	28	0.25	8.9
236	8.6	3	1.5	17	0.17	10.0
237	11.2	4	2.0	27	0.18	6.7
238	11.2	3	1.5	19	0.13	6.9
239	9.8	4	2.0	25	0.20	8.0
240	10.9	4	2.0	27	0.18	6.7

receiving 2.0 to 3.0 gm. Dog number 227 received 5.0 gm. and lived 63 minutes. He was one of the heaviest dogs weighing 12.9 kg. Dog 233 weighed only 8.7 gm. and was killed with 1.0 gram which was unusual in that weight group.

In our series of dogs, the average systolic pressure in the pulmonary artery was 24 mm. of mercury. The range was 10-30 mm. Hg. The average diastolic pressure 10 mm. Hg. The range here was 6-18 mm. Hg. After 0.5 gm. of carborundum there was an increased systolic, diastolic, and pulse pressure. Within zero to five seconds the systolic pressure would rise 10-20 mm. Hg. and the diastolic pressure would rise 5-10 mm. Hg. After 1.0 gm., the systolic pressure would rise 30-40 mm. Hg. over the resting levels with a corre-

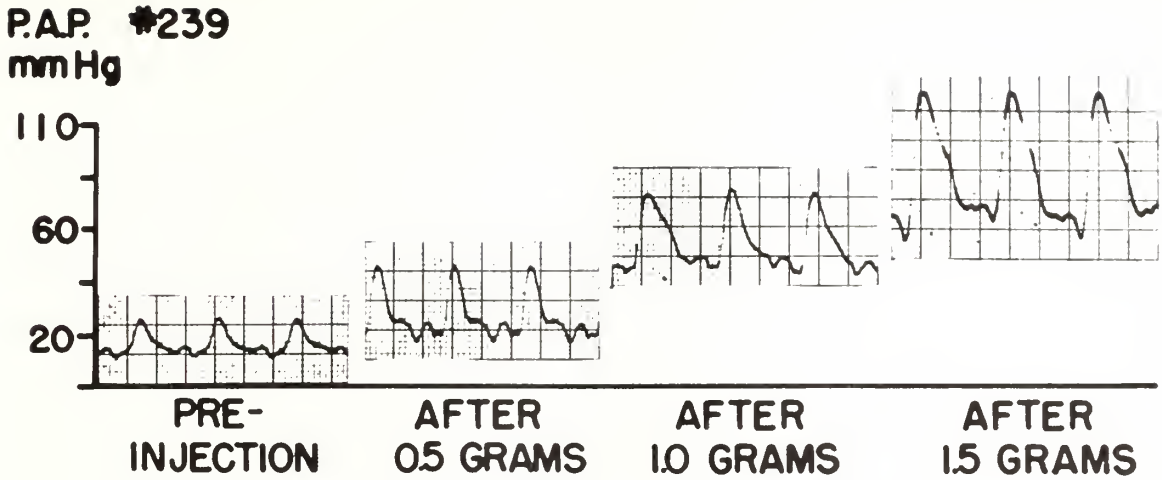


Figure 1

sponding rise of 15-30 mm. Hg. in the diastolic pressure. By the time 1.5 gm. was given, systolic pressures of 90-110 mm. Hg. were consistently obtained along with a diastolic pressure of 50-65 mm. Hg. (Fig. 1). In one animal no increase in pressure was seen after 0.5 gm. of carborundum and 2.0 gm. was necessary to attain a systolic pressure of 90 mm. Hg. Dog 227 tolerated 5.0 gm. of carborundum before dying.

The right ventricle in these dogs could tolerate pressures of 110 mm. Hg. acutely without failure. Addition of more carborundum usually resulted in a fall, rather than a rise, in the pulmonary artery pressure due to failure of the right ventricle. We observed many of the events recorded by others, namely hyperpnea then tachypnea which gradually became so shallow that breathing ceased. This happened without much change in cardiac rate. Cyanosis was present terminally. When the right ventricle began to fail, a gallop rhythm could be auscultated. We failed to observe apnea following injection as Halasz and Marasco did. Heart beats were present two to three minutes after breathing ceased. Electrocardiographic changes included T wave inversion, S-T segment depression and ectopic beats from multiple foci in the right ventricle.

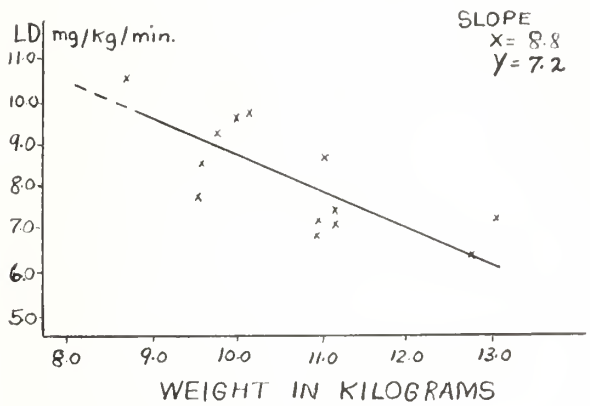
At necropsy, the right ventricle was dilated and the lungs were pale with areas of atelectasis and congestion. Careful inspection of the lungs revealed carborundum diffusely scattered throughout all lobes of both lungs. The lobar and segmental vessels were free of emboli except in two animals where one lobar artery was filled for several centimeters with large clumps of carborundum. These particular instances were probably due to difficulty in achieving even, rapid flow when the aliquots were infused.

If the weight of the dogs in kilograms is plotted against the lethal dose expressed as milligrams per kilogram per minute (see Graph 1), one sees a tendency for the lighter dogs to survive relatively greater doses than the heavier dogs.

The mean lethal dose in mg/kg/min is 7.8. The standard deviation is 1.3.

Discussion

An assumption that we made in the experiment was that the weight of the lung is directly proportional to the total weight of the dog. This is probably not true. While all of the animals were in a good state of nutrition, there was a significant variation in the amount of body fat. It is doubtful if the increased fat seen in some is represented by a proportionally



Graph No. 1

greater lung mass. Therefore, dosage is probably closer correlated to lung weight than total body weight. The age of the animal would be an important variable to consider. Due to the aging process, it seems likely that a young adult animal could tolerate more than an older adult of equal weight. The possibility of species variation should also be considered. Another experiment could be devised using the above factors. The results, interpreted conjointly with the

anatomy of the pulmonary circulation, would be helpful in understanding the altered physiology produced by pulmonary emboli. We could more intelligently study the role of reflex and mechanical mechanisms involved.

Carborundum proved to be a very effective agent in producing acute pulmonary hypertension. We were able, also, to produce chronic pulmonary hypertension in dogs that are still surviving. As was stated in the historical review, the relationship between mechanical or reflex factors is not clear. W. S. Miller estimated that the lungs contain 192,000 arterioles from which all capillaries are formed. These vessels are 165 microns or less in diameter. The size of our emboli were 50-90 microns which were small enough to pass through these vessels but too large to pass through an ordinary capillary. Brenner and Miller, in the study of the anatomy of the blood vessels in the human lung, believe the pulmonary arterioles, unlike those in the systemic circulation, are not well suited for the active control of vascular resistance. The latter contain in the media a thick muscular layer which is lacking in the former. If the particles occlude vessels distal to the arterioles, it seems that in the arterioles the pressure would be increased. We cannot say from this experiment that this increased pressure acts by some means to cause contraction of other patent arterioles. Griffin, Essex, or Knisley have studied this experimentally and deny existance of mechanisms whereby vessels in one portion of the lung are contracted by the presence of emboli in other portions. While reflexes may play a role in, as yet, an indefinite way, the death in these animals could be explained on the basis of a mechanical deterrent to blood flow through the lungs.

Summary

An experiment was performed in which 0.5 gm. amounts of carborundum particles 50-90 microns in diameter were given intravenously at seven minute intervals to 13 dogs until death occurred. Pulmonary artery pressure and electrocardiograms were taken. The mean lethal dose of carborundum was 7.8 mg/kg/min. After a pulmonary pressure of about 90-110 mm. Hg. systolic was reached, the dogs died.

Acknowledgements

This work was done under the direction of Dr. Fred Kittle, Department of Surgery, and Dr. Kurt Reissmann, Department of Medicine, both of the University of Kansas School of Medicine. I wish to thank them for their help as my co-worker, Mr. Luis G. Bianchini, and I performed the experiments.

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Editor's Note: References may be obtained by writing the JOURNAL of the Kansas Medical Society, 315 W. 4th Street, Topeka, Kansas.

Cardiac Resuscitation

(Continued from page 497)

on February 18, 1952.[1] The surgeon was charged with negligence for not attempting cardiac resuscitation and the hospital was charged with negligence for failure to have a stand-by surgeon who could perform cardiac resuscitation. The verdict favored the defendants.

The charge of malpractice comprises two essential allegations:

1. That the physician fails properly to perform his duty.
2. That definite injury to the patient results from this failure.

With the general acceptance by the profession of an established and proven treatment for cardiac arrest and ventricular fibrillation, one must consider the possibility that failure to undertake such resuscitative measures may be more likely to result in a successful malpractice suit against the physician than would an unsuccessful attempt to resuscitate the patient. Similarly, failure of the hospital to have available apparatus now accepted as effective and necessary for treatment of this condition may leave the hospital open to legal action.

While more and more Kansas surgeons are performing thoracotomy in cases of cardiac arrest, most Kansas Hospitals have not accepted defibrillators and other apparatus as essential equipment for the operating room or hospital in general.

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Epigastric Pain, Chills, Fever, Nausea, Weakness, and Loss of Weight

Case Presentation

A 64-year-old white man was admitted to KUMC on February 8, 1958, with a complaint of upper abdominal pain, fever, and fatigue. He died on March 12.

He had apparently been well until one year before admission when he developed nausea, weakness, and fatigue. Three months before admission he noted a continuous, dull, epigastric pain which radiated to the right infrascapular area and which was aggravated by eating. Two weeks before admission he had fever, chills, and extreme fatigue, and it became necessary for him to stop working. At that time he also had an episode of melena and one week later he had a spell of vomiting.

His mother died of cancer of the liver; his father died of "hardening of the arteries."

He had worked as a DDT truck sprayer from 1955 to 1957. He had had dyspnea on exertion and ankle edema for about five years and a chronic, productive cough for about three years. He had had no orthopnea, jaundice, or any change in bowel habits. He had symptoms of prostatism.

The patient was a well developed, obese, white man who appeared to be chronically ill. His blood pressure was 120/85; pulse 76 and regular; and his respiratory rate was 16 per minute. He was edentulous. He had no lymphadenopathy. His chest was clear to percussion and auscultation. The PMI was in the left fifth intercostal space in the anterior axillary line, and there was a grade II systolic murmur over the aortic area which was also heard in the third intercostal space at the left sternal border. The second aortic sound was greater than the second pulmonic sound. There was some guarding in the abdomen. The liver was palpated one and one-half cm. below the costal margin and was questionably enlarged. A tender, non-pulsatile mass measuring 3x4 cm. was palpated over the epigastrium and the right upper quadrant. The spleen and kidneys were not palpable. The prostate was soft and enlarged one plus, but there were no masses. The extremities were normal.

LABORATORY REPORTS

The specific gravity of the urine was 1.014 with two plus albumin and few waxy casts per high power field. Bence-Jones protein was negative. The white count was 14,300 with 84 per cent polymorphonuclears, 81 filamented (3 non-filamented), 15 per cent lymphocytes, and one per cent monocytes. The hemoglobin was 10.8 gm., and the hematocrit was 47 ml. Repeat blood counts showed a persistent leukocytosis with the same differential count. The sedimentation rate was 25 mm. per hour, and the C-reactive protein was three plus.

The VDRL was non-reactive. The blood urea nitrogen was 22 mg. per cent on admission, and a repeat test on March 8 was 43 mg. per cent. The fasting blood sugar was 109 mg. per cent; carbon dioxide, 21.8 mEq/L; sodium, 138 mEq; potassium, 5.4 mEq; and chloride, 94 mEq. On March 6 the sodium was 123 mEq; potassium, 5.4 mEq; and the chloride, 95 mEq. On March 10 the sodium was 130 mEq; potassium, 7.1 mEq; chloride, 101 mEq; carbon dioxide, 20.3 mEq; calcium, 5.3 mEq; phosphorus, 2.1 mEq; albumin, 3.7 gm. per cent; and globulin, 3.3 gm. per cent. Paper electrophoresis showed albumin 35 per cent; alpha-1 globulin, 11 per cent; alpha-2 globulin, 19 per cent; beta globulin, 14 per cent; and the gamma globulin, 22 per cent. The total cholesterol was 133 mg. per cent (60 per cent esters). The alkaline phosphatase was 0.4 units; thymol turbidity, 3 units; total serum bilirubin, 0.7 mg. per cent (direct, 0.4 mg. per cent); amylase, 45 units; lipase, 0.4 units; serum iron, 22 mcg. per cent; bromsulphthalein excretion, 37 per cent; transaminase, 14; and prothrombin time, 83 per cent. The blood ammonia

Edited by Jesse D. Rising, M.D., and Mahlon Delp, M.D., from recordings of the conference participated in by the departments of medicine, pediatrics, surgery, radiology, and pathology of the University of Kansas Medical Center, as well as by the third and fourth year classes of students.

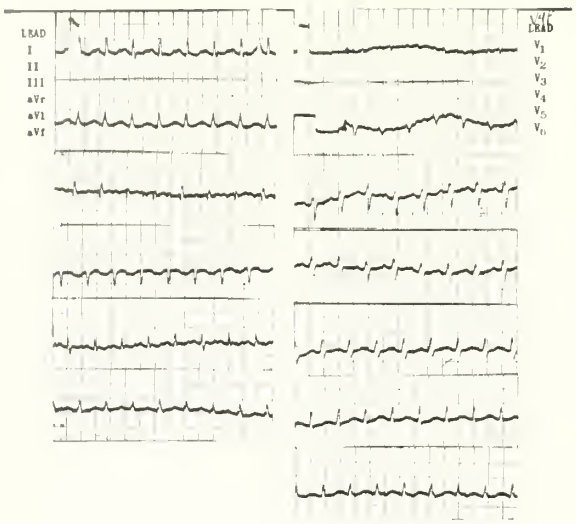


Figure 1. Electrocardiogram taken on March 6, 1958.

was 150 mcg. per cent. A repeat alkaline phosphatase on March 5 was 3.9 units.

The venous pressure was 16 cm. The arm to lung circulation time was 11 seconds and the arm to tongue time was 15 seconds.

A gastric analysis showed an absence of free acid in the fasting specimen, but after stimulation with betazole hydrochloride the highest value was 50 degrees. Fecal tests for occult blood were negative. The phenolsulphthalein excretion was 8.5 per cent in the first fifteen minutes and 31.4 per cent in one hour. A skin test for histoplasmosis was positive and for tuberculosis, negative.

On March 12 a sputum culture showed coagulase negative hemolytic and non-hemolytic Micrococcus aureus. The urine culture was negative.

On admission the patient had a temperature of 102 degrees. Two days later he was afebrile, but fever developed again on his sixth hospital day. He went to surgery on February 19, after which his postoperative condition was satisfactory. One week later a morbiliform rash was noted over his trunk and extremities. This was more prominent in the axillary and crural areas but was not associated with any itching. On February 4 he complained of shortness of breath, and the next day there was a sudden drop in his blood pressure. On March 12 at 6:15 p.m. he vomited a small amount of blood, and he continued to vomit larger amounts at frequent intervals. He went into shock, and died one hour later.

Dr. Mahlon Delp (moderator): Are there any questions?

Orville Boicourt (student)*: Did he have a history of colicky pain in the right upper quadrant?

Dr. Delp: He had abdominal pain when his body was jarred, and he had pain and discomfort after eating. The chest pain radiated through to the infrascapular area when he stooped over.

Albert Duncan (student): Were lymph nodes palpable in the axillae?

Dr. Delp: No, but there was some question of an abdominal mass because of the patient's guarding.

Ashford Galbreath (student): Was Murphy's sign present?

Dr. Delp: I do not believe that pain was elicited.

Kenneth Kihle (student): What was his intake and output?

Dr. Jose Martins (resident in medicine): After surgery the highest intake was 2800 ml., and the output was about 1500 to 2000 ml.

Orlyn Engelstad (student): Had he had an appendectomy?

Dr. Martins: There is no record of it.

Don Van Derby (student): Was a glucose tolerance test done?

Dr. Martins: No.

Mr. Kihle: Was he given a diuretic before admission?

Dr. Delp: No, but about four or five years ago he apparently had had some edema which did not disappear spontaneously.

Mr. Boicourt: When was the blood ammonia level recorded?

Dr. Delp: Three days before death.

Wilbur Neel (student): Had he been employed in any way other than as a DDT truck sprayer?

Dr. Martins: He had worked for several years as a mechanic for the highway department, and previously he had worked as a smelterer in southeast Kansas.

Mr. Galbreath: What were his smoking habits?

Dr. Martins: He had not smoked since January, 1958, but before that he smoked thirty cigarettes a day.

Don Ginardi (student): Was there a bilirubin subsequent to the one recorded in the protocol?

Dr Martins: Just before death the total bilirubin was 1.5 mg. per cent, direct 0.1 mg. per cent.

Donald Hayen (student): Had he had any previous transfusions?

Dr. Martins: No, he had not.

Mr. Duncan: What was his temperature course?

Dr. Martins: He had had chills and fever for several days before admission. He had a slight fever before surgery, but afterward his temperature was normal. By the end of February he again had a slight fever, but he became afebrile during the first week of March.

Dr. Delp: If there are no more questions, we will have the electrocardiograms.

Mr. Hayen: An electrocardiogram taken on Feb-

* Although a medical student at the time of this conference in November, 1958, he, like the others referred to as students, received his M.D. degree in June, 1959.

ruary 10, 1958, shows P waves and a normal sinus rhythm of 80. The QRS duration is at the upper limits of normal, but otherwise I interpret this as a normal tracing.

On March 6 the tracing (Figure 1) again shows a sinus rhythm and a rate of 160. There is a slight terminal depression in the S-T segment in leads I, aVL and V_6. I interpret this tracing as sinus tachycardia and possible left ventricular ischemia.

Dr. Delp: Do you believe that this tracing will contribute anything to the diagnosis?

Mr. Hayen: No, I do not.

Dr. Delp: We will now have the x-rays.

Mr. Ginardi: No bony abnormalities are seen in the P-A film of the chest (Figure 2). The lungs are well expanded, and there is no atelectasis. The dome of the diaphragm is elevated on the right side, but this is probably normal. There is some flattening of the diaphragm on the left which could indicate emphysema. I believe the overall picture of the x-ray is normal except for some emphysema and possible elevation of the right diaphragm and flattening of the left.

In the lateral film of the chest there is lipping of the spine indicating osteoarthritis. I believe the heart is normal. Again, there is a superimposed elevated diaphragm on the right and flattening on the left. In the posterior lung fields there is increased marking compatible with emphysema.

The x-ray taken at the time of operation shows the gall bladder filling normally and not enlarged. The dye can be seen going into the liver and the duodenum with no blockage.

The film of the barium enema shows a deflection of the hepatic flexure which I interpret as evidence of an enlarged liver. It is apparent that the patient had had intravenous pyelograms. We can see filling of the ureters, and there is a normal pattern of the calyx on both sides. No abnormalities of the kidneys are noted.

The next film shows anterior displacement of the stomach. There is good filling, and I believe there is a normal rugal pattern. Subsequent films show some hepatic enlargement and displacement of the stomach.

Dr. Delp: Dr. Youngstrom, may we have your comments, please?

Dr. Karl Youngstrom (radiologist): The dome of the diaphragm on the right is that of a pattern usually referred to as a "bosselation," and it is frequently seen in older people with weak diaphragms. It is, here, consistent with enlargement of the liver, especially when it bulges anteriorly. I believe, however, that it is more consistent with bosselation of the diaphragm; in other words, a weak place allows the liver to bulge slightly whether it is enlarged or not. Hepatic enlargement is indicated by the extension of the liver down to the crest of the ileum. The student must be complimented for recognizing that the stomach is displaced anteriorly. The flattening of the diaphragm on the left is consistent with some emphysema which is fairly common in people of that age with degenerative chest changes.

Figure 2. X-ray of chest on February 10, 1958.

Dr. Delp: Of particular interest is the history of chills and fever, the equivocal mass in the abdomen, the unusual pain and the hematemesis. Apparently he had had some bleeding before he was admitted, as it was reported that he had a tarry stool.

May we have the differential diagnosis now, please?

Differential Diagnosis

Mr. Duncan: Our case today is that of a 64-year-old white laborer who came here complaining of upper abdominal pain and progressive nausea, weakness, and fatigue of about one year's duration. Three months before admission he developed epigastric pain which was accompanied by chills, fever, vomiting, and rapid weight loss. On admission a tender, small mass was noted in the epigastrium, and the liver was slightly palpable. Laboratory tests showed a persistent leukocytosis with a high polymorphonuclear count and a hypochromic anemia. Bromsulphthalein and phenolsulphthalein tests were abnormal. There were albumin and casts in the urine. There was a low serum iron and a high blood urea nitrogen level. The sedimentation rate was fast. Eleven days after admission a surgical procedure was performed. His postoperative condition was satisfactory for about two weeks when he began to develop shortness of breath, and there was a sudden drop in his blood pressure. One week later he had an episode of hematemesis which resulted in shock and death.

My differential diagnosis will be based on epigastric pain and rapid weight loss. I shall first rule out pancreatic cyst and perinephric abscess because of the lack of appropriate history and physical findings. Because of his previous history of melena, peptic ulcer perhaps should not be ruled out completely. Multiple myeloma and amyloidosis should be mentioned because of the multiple system involvement, but I shall dismiss them because of the laboratory findings and the clinical course.

Diseases due to infection should be considered. Amebic and pyogenic liver abscess are suggested by the leukocytosis, chills, fever, the palpable, tender mass, and enlarged liver. Elderly people can have an acute, subacute or chronic appendicitis with varying symptoms, and this could be the focus for a pyogenic liver abcess. That is an unlikely diagnosis, however, because of the lack of history, jaundice, distention or ascites, and the absence of sepsis early in his disease.

Acute and chronic cholecystitis are extremely dangerous gangrenous forms which vary from mild to catarrhal types. The presenting symptoms may be severe pain, muscle spasm, rebound tenderness, nausea, and vomiting. Stones are present in about 90 per cent of these cases, and there may be jaundice and leukocytosis. I shall rule this out, however, because of the patient's protracted course, the absence of stones and any pre-existing cholecystitis.

Subphrenic abscess is an unlikely diagnosis because of the lack of depressed respirations and the basilar pneumonia so frequently found in that disease. Furthermore, the x-ray of the diaphragm is not compatible with it.

Subacute and acute bacterial endocarditis must be mentioned because of the patient's fever, murmur, and anemia, but I shall dismiss it as a possible diagnosis because he had no constant fever or other signs such as change in the heart murmur, Osler's nodes, splinter hemorrhage, splenomegaly, or clubbing of the fingers.

Chronic relapsing or calcerous pancreatitis can be ruled out because he had no acute attack, no severe colicky pain, or greasy, foul-smelling stools. In 50 per cent of these cases calcification is demonstrated by x-ray.

MALIGNANT DISEASES

Carcinoma of the lung must be considered because of his dyspnea on exertion for five years, the chronic cough for three years' duration, and his history of smoking one and one-half packages of cigarettes a day. I shall rule that out, however, because of the lack of hemoptysis and the duration of symptoms. Some carcinoma of the lungs can be metastatic, however, with no primary located at that time.

Cirrhosis is a predisposing factor in about 50 per cent of patients with primary carcinoma of the liver. Other factors which make that an unlikely diagnosis are the lack of jaundice, the normal alkaline phosphatase, and the absence of ascites.

Carcinoma of the stomach is suggested here because of the insidious onset of symptoms, the weight loss, vomiting, anemia, and the low serum iron. It is an unlikely diagnosis, however, because of the lack of blood in the vomitus, and there were no x-ray changes in the stomach other than forward displacement.

Malignant lymphoma and retroperitoneal lymphomas must be considered because of the history of fever, weight loss, nausea, and epigastric pain. In retroperitoneal lymphoma the stomach is displaced anteriorly. Secondary involvement of the genitourinary tract with albuminuria occurs in about 20 per cent of these cases. However, there is often a generalized lymphadenopathy and splenomegaly at some time during its course, and I shall, therefore, rule out that diagnosis.

Carcinoma of the gall bladder is found in 4.5 per cent of all carcinomas, and occurs most often in persons of middle and advanced age, about 70 per cent occurring in women and 30 per cent in men. Gallstones precede carcinoma in about 50 per cent of these cases. Pain in the right upper quadrant and in the right subscapular area is usually the most frequent symptom and occurs in 90 per cent of the cases. This pain may be typically gall bladder colic, but it is usually more severe. A weight loss of 10 to 15 pounds occurs in 65 per cent of these cases. A tender mass is often found in the right upper quadrant. If liver metastases have occurred they are often palpable as tender nodules in the lower liver edge. There is jaundice in only about 25 per cent of the cases, and, as a rule, it is progressive and persistent. Anorexia, nausea, and vomiting are common symptoms as the disease progresses. Metastases occur early and extend first to the liver and then to the lymph nodes and surrounding organs. Various degrees of infection are invariably present, and range from localized infections surrounding the tumor to acute cholecystitis or ascending cholangitis due to blockage of the cystic or common duct by stones or tumor. This is an unlikely diagnosis, however, because there was no previous history of stones, and the gall bladder functioned normally.

My final diagnosis is carcinoma of the pancreas which accounts for about two per cent of all carcinomas. It usually occurs in the 40 to 50 year age group, and about three times as frequent in men as in women. The course of pancreatic malignancy is usually rapid, and most cases terminate in less than one year. The symptoms most frequently reported are pain, weight loss, jaundice, nausea, vomiting, weakness, fatigue, constipation, personality changes and multiple venous thromboses. The most striking symp-

tom is the weight loss which may be as much as 80 pounds. The second most significant symptom is the pain which is extremely variable and can be misleading in that it may mimic biliary or intestinal problems. The pain is located in the upper abdomen and radiates through to the back. It is dull and often severe and is usually more intense following meals with no relief from physical activity or from bowel movements. When the patient lies on his back the pain becomes worse, and the jackknife position is usually assumed.

Approximately 97 per cent of patients with carcinoma of the head of the pancreas have jaundice, but it is infrequently seen in carcinoma of the body and tail. Laboratory findings are not diagnostic for jaundice, but the elevated bilirubin, the glucose tolerance curves, the determination of pancreatic enzymes from the duodenum, and stool examinations for excess fat or protein all contribute in making the diagnosis of carcinoma of the pancreas. I believe that our patient had carcinoma of the body and tail of the pancreas because of his history of epigastric pain which radiated to the back, the rapid weight loss, nausea, vomiting, extreme fatigue, and the absence of jaundice. The physical findings of a tender upper abdominal mass and the elevated fasting blood sugars support that diagnosis. The problem of an apparent septic course could tend to refute it, but in neoplastic diseases fever, chills, sweats, and leukocytosis with shift to the left are frequently noted. Carcinoma of the pancreas is one of the neoplasms known to cause this. The clinical course is only about one year's duration. Approximately three months before admission the patient had an acute exacerbation, and his condition rapidly became worse. Two weeks before admission final sepsis appeared, but he later became afebrile. His temperature rose again on the sixth, seventh, and eighth hospital day, and he had fever terminally. The productive cough, dyspnea, ankle edema, cardiac enlargement, increased venous pressure, prolonged arm to lung time, normal lung to tongue time, albuminuria, casts and decreased bromsulphthalein, and phenolsulphthlein excretions can be explained on the basis of pulmonary emphysema. He also had some myocardial ischemia. The low hemoglobin with reduced serum iron concentration is consistent with iron deficiency anemia, and this, together with the low serum iron, is certainly consistent with a neoplasm and infection. I do not believe that the bleeding he had before he entered the hospital could account for his anemia.

A surgical procedure was performed on the twelfth hospital day following which he did well for thirteen days and then developed shortness of breath and hypertension. There was transitory improvement, but he began to vomit blood, went into shock, and died. I believe the shock and bleeding were due to carcinoma of the pancreas eroding into the posterior aspect of the stomach or the duodenum. A retroperitoneal lymphoma with erosion and hemorrhage could also involve the stomach posteriorly. Gram negative bacteremia can also cause shock and gastrointestinal bleeding and is frequently seen in older, debilitated patients. This may persist for some time and is associated with considerable weight loss, fever, chills, and severe shock. Death usually occurs from twelve hours to twelve days after the initial onset of shock. Pulmonary emboli could have caused the patient's dyspnea and hypertensive episodes, but he had no hemoptysis or pleuritic chest pain.

Clinical Discussion

Dr. Delp: Thank you. What is your diagnosis, Mr. Hayen?

Mr. Hayen: Carcinoma of the body and tail of the pancreas.

Dr. Delp: Why was the patient bleeding?

Mr. Hayen: He was probably bleeding terminally because of involvement of the posterior aspect of the stomach.

Dr. Delp: Mr. Hardy?

Mr. Hardy: The bleeding was probably due to erosion by the carcinoma.

Dr. Delp: Mr. Boicourt?

Mr. Boicourt: He could have had acute thrombosis of the splenic vein with development of esophageal varices.

Dr. Delp: How do you account for his fever, Mr. Galbreath?

Mr. Galbreath: Fever, chills, and a high white count are common findings in carcinoma of the pancreas.

Dr. Delp: Mr. Engelstad, how did you rule out inflammatory disease of the gall bladder?

Mr. Engelstad: This was ruled out because of his two-week history here, and because there was no history of stones.

Dr. Delp: Mr. Hayen, can you explain the leukocytosis?

Mr. Hayen: Leukocytosis is present in carcinoma of the pancreas.

Dr. Delp: Mr. Ginardi?

Mr. Ginardi: I believe there was an infection.

Dr. Delp: Did his tenderness in the right upper quadrant affect your diagnosis, Mr. Duncan?

Mr. Duncan: No, it did not.

Dr. Delp: Dr. Klotz, what was your diagnosis?

Dr. Arthur P. Klotz (internist): My diagnosis before surgery was a cholecystic abscess.

Dr. Delp: Dr. Friesen?

Dr. Stanley Friesen (surgeon): My preoperative diagnosis was chronic cholecystitis and pericholecystic abscess. The chills, fever, and tenderness in the right

Figure 3. Gross photograph of the tumor in the tail of the pancreas. The tumor mass has been bisected. The capsule of the spleen can be seen in the background.

upper quadrant gave the impression of an inflammatory lesion.

Dr. Delp: Dr. Klotz, what was your impression of the patient's bleeding?

Dr. Klotz: My impression was that it was probably agonal and represented bleeding from an erosive esophagitis.

Dr. Delp: Thank you. We will now have the pathologist's report.

Pathological Report

Dr. Peter Rasmussen (pathologist): At autopsy there were evidences of cardiac failure with bilateral hydrothorax, ascites, ankle and pretibial edema, and acute pulmonary edema. A considerable amount of blood and mucus was present in the bronchi.

A rounded primary tumor replaced the tail of the pancreas (Figure 3), and the mass, yellowish-white, and somewhat lobulated in appearance, measured 3 cm. in diameter. In addition, porta-hepatic lymph nodes were infiltrated by tumor tissue.

Microscopically the cancer in the pancreas varied in morphology (Figure 4). Some portions contained large masses of tumor cells often simulating macrophages, but sometimes forming abortive acini. Mitoses were plentiful. A granular amorphous pink material could be seen in some of the larger tumor spaces.

A reticulum stain confirmed that tumor nests tend to be clumped or surrounded by areas of reticulum rather than individual tumor cells surrounded by reticulum, thus indicating a carcinoma. In addition, periodic acid-Schiff stains demonstrated mucus production by occasional neoplastic cells. The appearance, then, was that of an anaplastic carcinoma. Microscopic metastases could be found in the lungs.

The body of the pancreas was replaced by irregular acini. The pattern was not like that seen before, but was one of chronic pancreatitis with extensive, acute and chronic inflammatory infiltration as well as interstitial fibrosis.

There was interstitial edema in the kidney with some dropping out of nuclei and tubular degeneration in proximal convoluted tubules. In addition, focal thrombosis of arcuate veins and occasional foci of acute and chronic inflammation were evident. These findings were most compatible with an acute toxic nephrosis following infection or debilitation. The elevated blood urea nitrogen of 44 mg. per cent may not have been associated with this more terminal nephrosis, but probably was associated with a concomitant low serum sodium and represented a prerenal type of azotemia.

An acute pericholangiohepatitis with infiltrates of

(Continued on page 531)

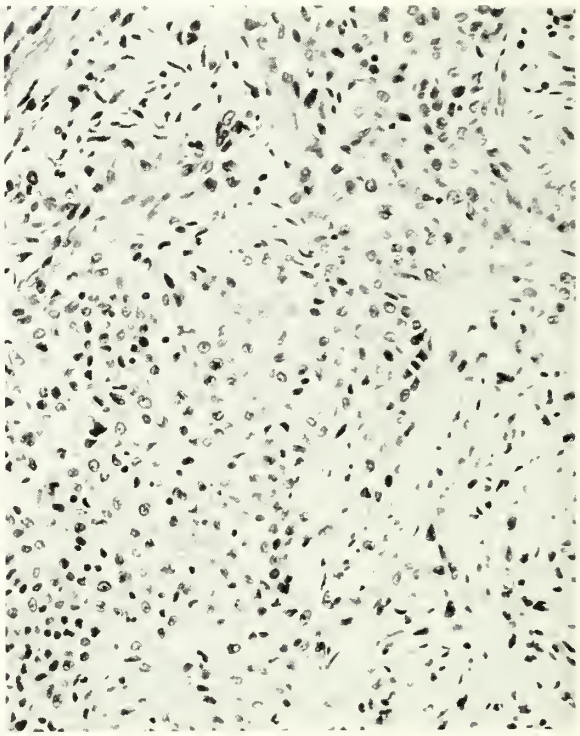


Figure 4. Photomicrograph of the main tumor mass. No organoid pattern can be seen. Hematoxylin eosin stain. 150X.

The President's Message

DEAR DOCTOR:

Your indulgence is sought for using this page again as a forum for a discussion of the Forand Bill.

This bill, H. R. 4700, is only one of many of a similar nature introduced into the past session of Congress and that will undoubtedly be brought up for committee or floor action at the second session of the 86th Congress. We who believe that this type of legislation is undesirable should be able to discuss the merits and demerits of this bill with our patients, friends, and political representatives.

As you know, the Forand Bill is an amendment to the social security act providing for hospital, surgical, and nursing home care to beneficiaries of social security, mostly those over age 65, 16 million U. S. citizens. This is to be financed by an increase in social security taxes, which are already scheduled to reach 9 per cent of payroll, up to $4,800.00, in the next few years.

Organized medicine is opposed to this legislation because:

1. The care of the aged is a community problem, best solved by the cooperative effort of doctors, hospitals, nurses, insurance companies, and responsible community leaders, not a federal government controlled plan.
2. This is a political approach to a health problem developed by non-medical people.
3. Government intervention will weaken the patient-physician relationship.
4. Political abuses and administrative wastes would be predictable.
5. Costs would be excessive.
6. Over utilization of hospitals can be expected.
7. The patient would not have unlimited choice of physician or hospital.

Medicine's answer to the problem of the care of the aged are beginning to crystalize. The AMA, the Blue plans, and the Health Insurance Council are exploring means of providing voluntary health insurance at a price the aged can afford. Many such plans are in effect and are meeting a need successfully. Conferences are being held to explore the entire needs of the aged, not just the health needs. The AMA has backed legislation aimed at assisting in the construction of nursing homes and convalescent centers. It is interested in experiments with progressive hospital care, home nursing, and home maker services.

Much has been accomplished to meet this new challenge to medicine. You can do your part by being familiar with the problem and making your thoughts known.

Fraternally,

Glenn R Peters M.D.

President

Just BROWSING

The use of mercurials, so long considered indispensable in therapeutics, was certainly not in the best favor of Dr. William J. Burge of Atchison, when he gave the "Report of the Committee on Mercurial Preparations" at the 1872 meeting of the KMS. A few excerpts from this report will demonstrate that he not only had strong feelings, but seemed to have a basis for them.

". . . It must be apparent to the most cursory observer, that within the last twenty-five or thirty years the practice of medicine has undergone very marked modifications. The lancet, for example, which within the memory of many of us, was in the hand of every physician, and in the arm of every patient, has finished its course and been laid away in the grave as quietly as many of its former victims. . . . Gradually it was discovered that more patients recovered who were not bled than of those who were, and this was true in every variety of disease. It took practitioners a long time to learn this, but they *have* learned it, so thoroughly that today we hear very little said about bleeding. With regard to mercurials, . . . men who were in the habit of prescribing calomel with a high-hand and with a stretched-out arm for almost every patient, now handle this potent remedy with gloved fingers, or only pick it up at all, as a dernier resort. The general and indiscriminate use of the drug has been fraught with so much disappointment that many physicians as well as patients have concluded that the little god in whom they trusted, is quite as likely to salivate as to save.

"We do not deny that mercurials are powerful remedial agents . . . but that they are indispensable to the successful treatment of any disease, admits of the greatest doubt. In fact, . . . thousands of intelligent physicians in every part of the world are daily demonstrating that any disease which can be cured by mercurials, can as speedily be cured by other and safer remedies. . . .

"At the period when mercurials were introduced to the profession, chemistry was in its infancy, and the materia medica from which the formulas of the wisest physicians were drawn consisted of little else than a mass of crudities, incongruities, and absurdities. For the comparatively few remedies which are still counted worthy of a place in our pharmacopoea we feel duly grateful to those good old hard-working experimentors, observers, and accumulators, but we nevertheless rejoice in the light of the past few years which has discovered so much rubbish among the valuables, and so many valuables among the rubbish. May we not hope that with a little more sweeping and garnishing our armamentarium medicarum will be fit for the closest inspection. Let us beware, however, lest in our zeal to get rid of the chaff, we lose some of the wheat also. Rich as we undoubtedly are in remedies, we cannot afford to part with any of our treasures. If it can be proved that any preparation of mercury is more positively indicated in any given diseased condition, than other remedies with which we are acquainted, far be it from me to discourage its use. . . . Whatever benefits may have accrued to the human race from the introduction of mercurials into medical practice, it has certainly suffered a vast amount of evil on account of the ignorant and indiscriminate use of these remedies. For every intelligent physician who prescribes a dose of calomel, there are a thousand self-constituted doctors who deal it out as freely as they would chalk or cheese. . . . The people pick their panaceas from the remedies which they observe to be most frequently used by the doctors. This accounts for the wide-spread employment of mercurials among non-professional persons among the middle and poorer classes. The evils resulting from the abuse of these remedies have continued beyond the period of necessity for their use. In skillful hands they were undoubtedly at one time the best known weapons wherewith to combat disease. We believe that time has passed. . . . I believe the profession today knows very little more about mercurials than it did twenty years ago, except the simple fact that they are not indispensable to the cure of any human malady."

How long do you suppose it will be before similar statements are made about antibiotics, adrenocortico steroids, the surgical removal of cancer, or its treatment by radiation?—O. R. C.

Cost of Health Care

Illness is an unexpected blow, not too unlike the panic a person feels when he turns a switch and the lights fail. The shock of the unanticipated disrupts his plans, alters his schedule and spreads resentment.

The cost of health care is so directly related to the emotional effect of illness, to the patient's sense of loss, his inadequacy, in addition to the physical side of the problem that these bills often become tangible factors against which a significant opposition may be raised.

The target is of course the physician. So logical is this warped sequence of reactions that it might be added to an impressive list as a side-effect of illness. It could almost be classified as an unwelcome by-product the doctor accepts with his professional career. It represents a penalty of leadership which only excellent service and the most ingenious tact has controlled to its present degree.

Not that the public lacks confidence in medicine. The layman speaks glibly about miracle drugs and about advancements in surgery. He has accepted these with a faith out of all proportion to his understanding. He looks upon health care as he does his mathematics in which the answer is predictable. Variations, of which the physician is so painfully aware, are problems the layman does not choose to recognize.

The fact this subject is complex makes it more difficult but if the physician is unable to explain his status as it relates to the patient and his illness, to the patient and his hospital, his drugs, his professional care, as well as to the patient and his emotional stress, how may he receive this understanding? Who other than the physician can show him what he receives for each dollar he invests in health? It appears a stronger voice than has yet spoken is needed at this time. Perhaps one will be found with the inspiration for words that can touch the layman's understanding.

How this is to be stated depends upon his genius but the subject can be anticipated. For example, the added life span may well be the most dramatic single historical fact of the past fifty years. Its social and economic implications exceed the bounds of imagination but the impact of longer life is of even vaster personal significance, Figures state life expectancy during the Roman Empire to have been 29 years, to have risen in 1900 in America to 49 years, and today to have passed 70 years, and is still climbing. Those are the cold facts. They need the warmth, the humanity of translation into individual meaning.

It is not enough to catalog medical advancements as one announces the new model of an automobile. The latter is an achievement of its own, the end result, but everything new in health care represents only a tool that lies dormant and without purpose until human skill adapts its service to a human life in need. There is a difference, which needs expression.

The economics of health care also cry for better understanding. Most laymen realize hospital costs have risen but few carry an appreciation of this fact. It is not enough today that the public learns physicians receive less from the present health care dollar expenditure than in 1929. In that year 32.6 cents of each dollar spent in health services went to the doctor. In 1957 this was 24.5 cents. Dentists' services take less also, 16.4 cents in 1929 and 11.3 cents in 1957. The drug percentages remain constant during this period at 20.6 cents for each of the two years studied. Several minor items fluctuate but their status does little to influence the picture. It is hospital cost, rising from 1929 when 13.7 cents of each dollar was spent at hospitals to 1957 when the take was 25.8 cents, that is important.

Those are the statistics but they stand poles apart from the individual who finds a debt on his hands. His becomes a personal problem and only the well integrated or the well informed can view this objectively. So, after all, it becomes the responsibility of the physician to interpret this information into areas of the patient's personal experience. Where this has been successfully accomplished medicine is not criticized. The need remains, however, for an increased effort to tell this story honestly and well, to tell it with dignity and understanding of the listener's needs. This can be done. It remains now to find such

voice. Who could do it better than the doctor as he visits with his patient during the course of his professional service?

Letter From AMA

The Forand Bill, listed as H. R. 4700, will, in 1960 as it was in 1959, be the principal weapon employed in the battle to socialize the practice of medicine in the United States. Students of political science predict a major effort will be conducted over this issue during the second term of the 86th Congress convening on January 7, 1960. The bill currently rests in the Committee on Ways and Means in the House of Representatives.

In brief this amendment to the Social Security Act would pay from that fund the cost of surgery, hospital care up to sixty days and care in a nursing home up to 120 days for persons entitled to retirement benefits under Social Security and their dependents. It would increase the social security tax.

Hearings were held on this bill last July and many arguments were presented for and against the proposal. Those asking for the passage of the Forand Bill declare the aged cannot afford the cost of health care and are being neglected. Medicine and many in other areas of activity deny this as an unfounded statement, declare the measure socialistic and economically unsound.

The physicians of Kansas exerted some considerable effort both in assuring that the aged in this state were cared for and in acquainting their Congressmen of the dangers in the Forand Bill. Even more activity will become evident in this field during the next few months.

A letter from F. J. L. Blasingame, M.D., executive vice president of the American Medical Association expresses thanks to the doctors of Kansas for their efforts. The Council directed this should be made known to each physician. It is therefore published here.

American Medical Association
535 North Dearborn Street
Chicago 10, Illinois
July 30, 1959

If time would permit, I would like very much to write individual members of the Kansas Medical Society as well as members of lay organizations in your state, to thank them for the splendid cooperation they gave us during the past month in regard to the Forand Bill. Your personal effort in cooperating with Mr. Dalbec of our Field Service Division in alerting the profession was most gratifying.

The spontaneous results of the many letters, telegrams, etc., received by your Congressmen; the excellent written testimony from your Society and the presence of Glenn R. Peters, M.D., in Washington; the most timely letter from Mr. Carl Lamley and Sister Mary Roberta, R.S.M.; were most encouraging to the staff of the American Medical Association. All this, as well as the cooperation indicated by lay organizations in your state, represents the only possible way we have of winning this fight.

Would you kindly convey our thanks to all concerned and may we earnestly solicit your continued cooperation in keeping your Congressmen informed on all legislation pertaining to health when they are at home or in Washington.

This indeed will preserve the cause of freedom, and, for this philosophy, we cannot be challenged.

Sincerely yours,

F. J. L. Blasingame, M.D.
Executive Vice President

Healing Arts Practice

The Council of the Kansas Medical Society in a meeting at Topeka on October 4, 1959 received the following correspondence. It was considered of sufficient significance to the physicians of this state that action was taken directing it to be published in the JOURNAL.

TO WHOM IT MAY CONCERN:

At the July 30, 1959 meeting of the KANSAS STATE BOARD OF HEALING ARTS, the following Resolution was adopted:

RESOLUTION

WHEREAS, the Kansas State Board of Healing Arts has been advised that some of the hospitals in the State of Kansas may be engaging in the unauthorized practice of the Healing Arts.

WHEREAS, the Kansas State Board of Healing Arts is charged by law with the regulation and control of the practice of the Healing Arts in the State of Kansas.

NOW THEREFORE, be it resolved that the Kansas Hospital Association, the Kansas Medical Society, the Kansas State Osteopathic Society, the Kansas Chiropractors Association and Kansas Chiropractic Society, the Kansas Physicians Service, the Kansas City Blue Shield, and the insurance companies writing health and accident and compensation insurance, be notified that hospitals in Kansas are not authorized to engage in the practice of the Healing Arts as defined by the Kansas Healing Arts Act, and that all professional services performed in the practice of the Healing Arts must be performed by or under the supervision of a duly licensed practitioner.

F. J. Nash, M.D., Secretary
KANSAS STATE BOARD OF HEALING ARTS
364 New Brotherhood Bldg.
Kansas City, Kansas

Washington HIGHLIGHTS

This summary of Washington news is prepared by the A.M.A. Washington Office for distribution to state medical journals.

Chamber Warns of Forand Fight

The U. S. Chamber of Commerce and two key Congressmen, all opponents of the so-called Forand bill, recently issued separate warnings that an all-out effort will be made to get the controversial legislation through Congress next year.

In its weekly report to members, the Chamber predicted there will be "a powerful attempt" in the next session of Congress to enact the bill (H. R. 4700) which would increase social security taxes to help pay for the cost of the Federal government providing surgical and hospital care for social security beneficiaries.

The Chamber warned that passage of the legislation would mark a major break-through into the welfare state. It probably would lead to a compulsory Federal program providing complete medical care for everyone, the Chamber said.

There would be "no stopping" of such a program once it got started, the report said.

The Chamber called upon communities to find orderly solutions to the problems of the aging. Otherwise, solutions will surely be imposed from Washington, the report added.

Congressmen Urge Doctors to Act

Similar warnings were voiced by Reps. Richard M. Simpson (R., Pa.) and Thomas B. Curtis (R., Mo.), key members of the House Ways and Means Committee where the bill was put on the shelf last session.

Rep. Curtis urged that the medical profession and other leading opponents make a strong counter-drive in an all-out effort to block passage of the bill next session. Unless there is such action, he said he would have to "regretfully" predict that legislation along the lines of the pending bill probably will be enacted in 1960.

Rep. Simpson said that H. R. 4700, and similar legislation affecting the medical profession, "make it imperative that every doctor keep informed on legislative issues before Congress." He also urged that physicians "become patriotic political forces" by giving "their informed viewpoint" to lawmakers at all levels of government.

Rep. Simpson said it "is important" that opponents of H. R. 4700 develop "appropriate alternatives" to solve the health care needs of the aged.

He promised to continue to cooperate with the medical profession to guard against the disastrous consequences of compulsory national health insurance.

High Hopes for Keogh-Simpson Bill

House Democratic Leader John McCormack of Massachusetts expressed hope that Congress next year will stamp final approval on another bill of particular interest to physicians. He praised the Keogh-Simpson bill (H. R. 10) as "meritorious legislation" and said it "should be enacted into law next year." The measure, which was passed by the House last spring but left hanging in the Senate Finance Committee, would provide income tax deferrals for self-employed persons setting aside money for private retirement plans.

Program and Progress

A National Republican Committee on *Program and Progress* proposed a far-reaching health program to be carried out by the Federal government in partnership with states and local governments.

Its goals would include: enlarging the capacity of medical schools so that 3,000 more doctors could be graduated each year, providing more hospital and nursing home beds, and supplementing hospital facilities with clinics, day-care centers, and more visiting nurses to care for patients in their own homes.

The progress of medical science would be furthered by continued Federal support for basic medical research. But such Federal support would be given under conditions to encourage maximum non-Federal spending on medical research and to prevent "too great a diversion . . . of doctors required for the equally urgent needs of teaching and medical practice." It was estimated that expenditure of $1 billion a year—equally divided between the Federal Government and non-Federal sources—would be required by 1965.

Other recommendations included: vigorous Federal

(Continued on page 525)

The Kansas Press Looks at Medicine

Editor's Note. In this section the JOURNAL *reproduces editorials relating to medicine which have appeared in the lay press. An effort is made to include both favorable and unfavorable comments, and the Editorial Board in no instance assumes responsibility for the opinions expressed.*

Unions Want Own Medical System

Pushing their fight against the American Medical Association and the hospitals which they struck last summer, labor unions of New York State have plans to build their own hospital chain and operate their own medical insurance system in competition with Blue Cross and Blue Shield. They even talk of establishing medical schools to train physicians.

Whether anything ever comes of it is to be seen. It may be similar to union leader complaints about press and the talk of establishing newspapers. But they never get around to it.

But New York labor leaders have strong feelings about the hospitals, which they say have "sweatshop health standards," and about the medical insurance system. Big business, it is contended, dominates the insurance system and labor is outvoted. They want a system of benefit to the people.

That the unions have tremendous resources for these projects is true. The 26 New York unions interested in the proposal have combined reserves of $750 million in pension-welfare funds jointly administered by labor and management. Whether the unions could get employers and neutral trustees to agree to the ambitious program is doubtful. It would be risky to apply the funds to insurance programs, hospitals and medical schools that might show losses.

If this project it doubtful, however, the backing of unions for legislation in the next session of Congress to win more liberal medical treatment for aging and other citizens is certain.—*Wichita Eagle*, September 26, 1959.

A Hitch in the Belt

You can discuss the current local county-versus-medical vendors argument on two levels. There is the practical, factual dispute that involves percentages, per diem, prescription price lists, and contracts. That is the level on which the argument has been discussed for a long time.

While we like to think we're generally pretty practical in our approach, we much prefer to discuss the welfare medical issue on its theoretical, philosophical level. Don't run. Actually, the layman can make a great deal more sense out of the philosophical issue here than the practical level, which is overburdened with figures nobody can prove.

Try these basic questions on for size:

1. How much medical care do we want welfare patients to receive?

To help you ponder this issue remember that "the best" these days usually means expensive antibiotics, a hospital stay, tests and all of the latest developments known to medical science. When you contract the flu, you yourself must decide, "Do I call the doctor for treatment and a prescription, or do I just ride it out until the bugs get tired and quit?" "The best" would involve calling the doctor and possibly going to the hospital.

There are levels of medical care, and to a certain extent we determine the level we want by how much we want to spend. If the welfare client doesn't personally pay the medical bill (which he doesn't), then he naturally asks for "the best." Barton County's doctors indicate that the county's welfare clients have been getting the best care available. They say the welfare department has on occasion encouraged them to give less than the best. What does the public want in the way of medical care for welfare patients?

2. Assuming you have set the level of care that should be made available to the welfare client, who should bear the burden of the costs incurred?

In answering this question, you should bear in mind that there was a time when there were few expensive drugs, few hospital beds. Doctors treated

welfare patients in their offices, or in the patient's home. It was relatively simple, and in those days, the doctors did much of the welfare work without charge, or at minor expense to the county. Bear in mind also that medical expenses now lean heavily toward the hospitals and drugs, where the vendors have fixed expenses. Remember that hospitals are tax-free, charitable institutions, but are also non-profit, depending on income from hospital charges to meet expenses.

3. Should the county welfare board negotiate with the medical vendors for rates under those paid by the general public?

Remember that the county takes bids or otherwise negotiates with vendors for cars, asphalt, pencils and most of the other things it buys. But remember also that the county does not ask grocers to sell food to welfare clients at prices less than those paid by the public. And more important, remember that medical vendors are dispensing professional talent and services in addition to products. One doesn't ordinarily seek bids on an appendectomy.

Barton County's dispute is far from unique. Many Kansas counties are in the throes of a welfare medical payment hassle. Some county governments pay much less per welfare client for medical care. Chances are in these counties, fewer welfare clients are sent to the hospital and medical care is not so advanced as it is here. Some counties pay more per patient than has been paid here (though not very many).

The variations have developed through the years, without the aid of legislation. As a result, neither the welfare boards nor the medical vendors can call upon state statutes to settle their differences. The medical vendors traditionally have provided services to all, and are charged with accepting patients in hospitals as charitable institutions. So, while the county has financial resources with which to pay for welfare clients' medical expenses, the county can refuse to pay the full bill and get away with it. The county can't be sued.

The wide variation in welfare medical costs across the state has prompted the State Board of Social Welfare to urge county boards to hold the line on medical payments. But they have done so without telling the counties what level of medical care the welfare patients should receive. Nor have they stated just where the burden of paying the costs should fall.

These questions will eventually have to be settled on a statewide basis. But we have no guarantee of when that much-needed action will come. In the meantime, we can't have this local quarrel going on and on without settlement.

That means that the Barton County public must indicate to its elected commissioners what the public wants. Every taxpayer contributes towards the welfare department's operation. The welfare program should be and would be responsive to a public expression on the basic issues involved. The *Tribune's* Public Forum is open to those who have opinions on this important local problem.—*Great Bend Daily Tribune,* September 20, 1959.

KU Medical Center Doing Research on Polio Pills

If you are among those people who would prefer a beating to a shot from a hypodermic needle, then you will be delighted to know that another vaccine is being developed in pill form.

The University of Kansas Medical Center has been chosen to do research and test anti-polio pills. The pills will be tested on humans before they are adopted for general use.

The *Wichita Eagle* said recently that Dr. Herbert A. Wenner, in charge of virus studies at the Center, reports that the pills—believed to give lifetime immunity against paralytic polio—will be tried first on a pilot group of 20 youngsters, and later on thousands of children.

The *Eagle* pointed out that this is of tremendous importance; for if the tests prove the pills, millions of persons can be protected permanently without the difficulty of getting repeated shots.—*Coffeyville Journal,* October 8, 1959.

Washington Highlights

(Continued from page 523)

support of preventive health programs, and expansion and greater flexibility of voluntary health insurance programs.

"A free people and a free medical profession can achieve these goals with the wise support of government, without bureaucratic restrictions or interference with the physician-patient relationship which has made American health services a model for the free world," the Republican Committee stated.

Five-Point Plan

The Committee proposed a five-point *partnership* program: 1) short-term Federal aid for construction of medical school buildings, 2) changes in the present hospital construction program to encourage renovation and repair of outmoded hospitals, 3) Federal guarantees for mortgages to finance construction of private nursing homes on a basis assuring high standards of quality in construction and operation, 4) encouragement of construction of diagnostic and outpatient facilities in rural areas and the building of mental health clinics, and 5) Federal aid to cities "in more effective planning and coordination of health services."

The Business Side of Medicine

Liquidity Is Important to Your Estate

FLOYD F. WEHRENBERG, ***Kansas City, Missouri***

The meaning and importance of liquid assets are well known; that is, assets that can easily and quickly be converted to cash. By the same token, liquidity is just as important in the expedient settlement of an estate as in the operation of a business.

Without the necessary cash or liquid assets in an estate, there may be substantial losses and in some cases the entire estate plan will be placed in jeopardy. Because this subject is of primary importance to all who are systematically planning their estates, some of the pertinent problems of liquidity will be considered in this article.

Estimating the need for cash is often one of the most difficult things to do. The average person is seldom aware of the amount of cash that will be required to settle his estate. Medical, burial, and other last expenses as well as current unpaid bills, mortgages, and notes will all have to be settled. In addition there will be income tax on the final tax returns of the decedent in most cases, court costs, and administrative costs, and finally the federal estate and state inheritance taxes will fall due within a period of 15 to 18 months after death. It is obvious that in the case of a comparatively large estate, the amount of cash needed could amount to several thousands of dollars. If this is not available, substantial and unnecessary losses may result. Valuable property may have to be forfeited in an unfavorable market or a controlling business interest may have to be sacrificed. Accurate estimating of cash needs, then, is vital in planning for adequate liquidity and should be based on the preceding factors as precisely as possible.

The best type of liquid assets often poses a problem. Generally speaking, cash for the settlement of an estate should come from the following sources: cash, savings and checking accounts, corporate, municipal, and United States Government Bonds and marketable securities. At the time your estate plan is initiated, you should consult your attorney, your life insurance agent, business consultant, and broker before designating the assets to be used for cash needs.

Another factor to be considered is the *availability of the liquid assets to the estate.* In many estates there are sufficient liquid assets but they may not be available. For example, bank accounts and bonds are often held in joint tenancy with the right of survivorship. In such cases where these assets are intended to provide liquidity, they may instead pass directly to another person by operation of law rather than the will or estate plan.

What of a business interest? If the business is to be liquidated, the administrator or executor should have the right to operate it for a reasonable period of time in order to liquidate it under the most favorable circumstances. This will only be possible if the necessary funds are available to the administrator or executor. Liquidity will also be a controlling influence over the terms of a sale of the business and will govern whether or not a contract or mortgage sale can be made.

If the business is to be carried on, obviously sufficient available cash is essential to its efficient operation, and this cash should not have to be procured by forced sale of some other asset.

The problem of liquidity in the settlement of an estate is real and important. And since it is subject to constant change it should be reviewed and revised periodically by the property owner under the guidance of an experienced attorney and financial counselor. By following this policy, you will be able to realize your estate plan and provide maximum protection for your loved ones.

Mr. Wehrenberg is Missouri-Kansas manager, Professional Management Midwest, 4010 Washington Street, Kansas City, Missouri.

Blue Shield

Blue Cross-Blue Shield Rates Raised

New Blue Cross-Blue Shield rates for non-group and Farm Bureau members and certain employee groups have been submitted to the State Department of Insurance. Following approval by the Insurance Department these new rates will go into effect in January for most group members; in February for non-group members, and March for Farm Bureau members.

The proposed new rates are as follows, based on the $10 deductible for Blue Cross, and Plan A Blue Shield: (Blue Shield Plan B rates will be increased proportionately.)

Want All Members to Understand

Full information will be supplied to all Blue Cross-Blue Shield members before *any* rate changes take place. Upon approval by the Insurance Department, a letter of explanation from the presidents of the two Plans, accompanied by other basic information concerning the reasons and need for the increase will be mailed to all groups, and to non-group and Farm Bureau members preceding their billings in February and March.

In the meantime, meetings are being held with group, Farm Bureau and non-group members, explaining the need for an adjustment in dues. At the nine District Member Council meetings in October a complete report of the financial status of both Blue Cross and Blue Shield was heard, along with a discussion of recent trends in the utilization of services of both Plans. Members were given an opportunity to consider possible options, like deductibles, as a part of their present programs.

We repeat here some of the information which has been presented to members during the past several weeks:

- For the twelve month period ending July 1, 1959, each dollar of income was spent like this:

In Blue Cross:	95.4	cents spent for cases
	6.4	cents operating expenses
	101.8	is the total spent per dollar income
In Blue Shield:	94.1	cents spent for cases
	11.8	cents operating expenses
	105.9	cents is the total spent per dollar income

- Combined operating expense for the two Plans is only 8.2 cents per dollar.
- Last year it cost hospitals an average of $23.25 a day for patient care. This year, one day's hospital care is averaging about $25.00. Next year, hospital costs are expected to be approximately $26.85.
- Use of hospital services is still increasing. Last year there were 1,197 days of hospital care for each 1,000 members. This year it increased to about 1,230

(Continued on page 528)

	Present			*Proposed Rates*			*Percentage Increase*		
	BC	*BS*	*BC & BS*	*BC*	*BS*	*BC & BS*	*BC*	*BS*	*BC & BS*
Group Family	$ 6.80	$ 3.00	$ 9.80	$ 7.40	$ 3.70	$11.10	8.8	23.3	13.3
Non-Group Family	$ 8.10	$ 3.30	$11.40	$ 9.60	$ 4.50	$14.10	18.5	36.4	23.7
Farm Bureau Family	$ 7.30	$ 3.30	$10.60	$ 8.10	$ 4.40	$12.50	11.0	33.3	17.9

County SOCIETIES—CURRENT ACTIVITY

The **Cherokee County Medical Society** held a meeting at the Blue Castle Cafe in Baxter Springs recently.

Resolution was made to urge the Cherokee County Health Department to have a clinic for immunizations of polio, diphtheria, pertussis, tetanus, and small pox.

As a result of this meeting a clinic will be held in the county. The Society will also invite Dr. Paul Lawson of the South-East Kansas hospitals at Chanute, to conduct the tuberculin testing program in the county.

The **Golden Belt Medical Society** held a meeting last month at the Concordia Country Club in Concordia. Included in its program were the topics of "Management of Compression," "Fractures of the Dorsal and Lumbar Spine," by Dr. Cline Hensley, Wichita, and "Clinico-Pathological Conference," conducted by Clarence J. Weber, Salina. Refreshments and a dinner were served at the country club after which a business meeting was held.

"Your Heart" was the theme of a health meeting that was held in the city auditorium last month. It was sponsored by the **Shawnee County Medical Society** and The Kansas Heart Association and the Shawnee County Extension Service. Guest speakers were Dr. Grey Dimond of the University of Kansas Medical Center, Director of Cardiac Research. Films were also shown.

A panel of local doctors moderated by Dr. J. L. Lattimore answered questions. Other members of the panel were Dr. D. R. Bedford, Dr. John E. Crary, and Dwight Lawson.

Dr. Glenn R. Peters, president of the Kansas Medical Society, was speaker at a recent dinner meeting of the **Miami County Medical Society** and the Hospital Board of Trustees in the Miami County Hospital in Paola.

The doctors of the **Central Kansas Medical Society** met Thursday, September 17, at the country club at Ellsworth.

The scientific program was furnished by Dr. Wray Enders, anesthesiologist from St. Margaret's Hospital in Kansas City, Kansas. He spoke on his experiences with a recently developed anesthetic agent. Dr. Robert E. Allen, an oral surgeon from Kansas City, spoke on the subject of the immediate treatment of crushing face injuries.

Blue Shield

(Continued from page 527)

days. In 1960, it will be 1,265 days if the present upward trend continues.

- The use of physicians' services covered by Blue Shield is continuing to increase at the rate of 5 per cent a year.
- Whenever the cost or use of hospital-medical care increases, Blue Cross-Blue Shield pays more for services received. For example, if the cost of a semi-private room, drugs, dressings, laboratory, and oxygen increases 7 per cent, Blue Cross will be paying out 7 per cent more in 1960.
- The cost per member to administer Blue Cross-Blue Shield has remained fairly constant the last several years. As a per cent of income, operating costs have decreased from 9 per cent in 1958 to approximately 8.2 per cent in 1959.

The new interest rates on Series E and H Savings Bonds improve the yield on old bonds as well as on "new" ones bought since June 1, 1959.

KMS Obituaries

MILDRED CURTIS, M.D.

Dr. Mildred Curtis, 79, Iola physician, died October 4, at the Mercy Hospital, Fort Scott. She had been in failing health for some time.

Doctor Curtis was born in Geneva, grew to womanhood there and attended the University of Kansas Medical School. After receiving her diploma she returned to Iola in 1906 and practiced medicine there until a short time before her death.

She is survived by her half brother, two stepbrothers, and a stepsister.

Doctor Curtis was a member of the Allen County Medical Society since 1953.

FRED E. HARVEY, M.D.

Dr. Fred E. Harvey, 77, prominent Ottawa County physician, died the morning of August 6 at a Concordia rest home.

Born in 1881 in Ottawa County, Doctor Harvey had practiced medicine in Minneapolis from 1905 until the time of his retirement in 1954.

He served several terms as Ottawa County Health Officer. Doctor Harvey worked in field hospitals in France as an Army Major in World War I and later served with the American Army of Occupation in Germany.

He was a member of the staffs of the Ashbury and St. John's Hospitals, Salina, and a member of the American Medical Association and the Golden Belt Medical Association.

A charter member of the Minneapolis Post of American Legion, he also belonged to Veterans of Foreign Wars at Minneapolis. His survivors include his wife, a son, and his mother.

Doctor Harvey had been a member of this Society since 1935.

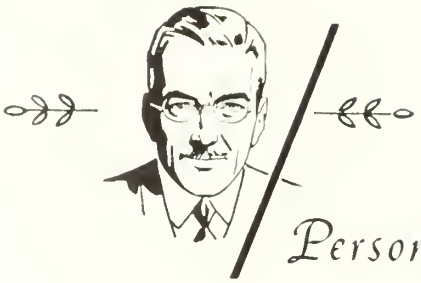
B. C. BEAL, M.D.

Dr. B. C. Beal, 83, practicing physician in Clearwater for more than 50 years, passed away on October 14. Dr. Beal died at St. Joseph Hospital. He was born June 18, 1876, in Tama, Iowa. He was a staff member of the St. Joseph Hospital and a member of county, state and national medical associations.

Dr. Beal was one of the oldest registered pharmacists in Kansas.

His survivors include his wife; a son, two daughters; brother, and three grandsons.

Doctor Beal was a member of the Sedgwick County Medical Society since 1933.



Personalities—IN KANSAS MEDICINE

Dr. C. D. Shrader has opened an office for the general practice of medicine and obstetrics in the United Building at Salina, Kansas.

Doctor Shrader has practiced in Newton for the past 12 years. He is a graduate of the University of Kansas School of Medicine in 1942, and served three years in the Navy.

Dr. A. E. Bair, Independence surgeon, recently returned home from an Atlantic City meeting where he was initiated as a fellow into the American College of Surgeons. He was one of the 1,013 surgeons from all over the world to be initiated.

A fellowship was also granted to **Dr. G. Bernard Joyce** of Topeka by the A.C.S.

A graduate of the University of Kansas School of Medicine in 1944, Doctor Joyce came to Topeka in 1953. He spent several years prior to that in the east studying orthopedics.

He is secretary of the executive medical staff of the Stormont-Vail Hospital, head of the Department of Surgery at St. Francis Hospital, and treasurer of the Shawnee County Medical Society.

Dr. Lynn O. Linton, Kansas City, and **Dr. Warren E. Meyer,** Wichita, also received a fellowship in the recent Atlantic City meeting of the American College of Surgeons. The A.C.S. founded in 1913 to establish standards of competency and character for specialists in surgery, has grown in 46 years' time from a founding group of 450 to a total membership of more than 23,250. Dr. Linton and Dr. Meyer were two of four Kansas physicians to receive the A.C.S. honor.

Dr. Karl Rottluff, Bonner Springs, announced last month that he is closing his office for private practice. Doctor Rottluff has been practicing medicine for more than 25 years.

Two Leavenworth physicians whose combined years of medical practice total more than a century, were honored by the Leavenworth County Medical Society recently. They are **Dr. D. R. Sterett** and **Dr. G. Ralph Combs.** They were cited at a dinner in their honor at the Hotel Cody in Leavenworth.

Doctor Sterett started practice in Saxman, Kansas in 1907, then moved to Winchester that year and to Leavenworth in 1916.

Doctor Combs began his medical career 57 years ago after he received his degree in medicine from the University of Pennsylvania.

The Hartig Clinic in Downs has a new associate, **Dr. Richard Boone.**

Doctor Boone graduated from the Kansas City College of Medicine and Surgery in 1920. He had a private practice and was a consultant and staff physician at Willow Maternity Hospital in Kansas City, Missouri for ten years. He had a general practice in White City, Kansas for 12 years also.

Doctor Boone also has had training in neuropsychiatry and geriatrics, and has been certified in geriatrics. Doctor Boone is a member of the Sedgwick County Medical Society, Wichita.

Dr. Larry E. Vin Zant, Wichita, was re-elected recently to the position of president of the Kansas Division of American Cancer Society. His election was part of the recent annual meeting of that society

NEW MEMBERS

The JOURNAL *takes this opportunity to welcome these new members into the Kansas Medical Society.*

Margaret B. Obenschain, M.D.
First National Bank Bldg.
Winfield, Kansas

Lew W. Purinton, M.D.
839 S. Hillside
Wichita, Kansas

in which two projects came forth—the first being a group of 15,000 families in the state will be asked to take part in a six-year study to attempt to determine cases of cancer. The second project is the establishment of new "Living Research Memorials." Under this program all money donated as memorials will be used for research products.

Dr. A. H. Baum, Dodge City, was recently a speaker for the Achievement Day for the Ford County Home Demonstration units. His subject was "Use of Hypnosis in Medicine."

A recent honor was given to **Dr. Leroy A. Calkins,** Kansas City, when he was honored at a dinner given at Wolferman's in Kansas City, Missouri, by former resident physicians at the University of Kansas Medical Center, whose preceptor he was while they trained for their career for Ob-Gyn.

He was presented a portrait of himself done by Daniel MacMorris, a Kansas City portrait artist. It will hang in the Clendening Medical Library at the Medical Center along with portraits of other illustrious staff members, both living and deceased.

The presentation was made by Dr. T. J. Sims, first resident physician in Ob-Gyn at the Medical Center, and also the first under Dr. Calkins.

Doctor Calkins has recently passed his 65th birthday. He is a member of the Wyandotte County Medical Society.

C. P. C.

(Continued from page 518)

acute and chronic inflammatory cells in portal areas was present, and was probably related to the pancreatitis.

There was a striking degree of hemosiderosis of the spleen which weighed 250 gm. (normal 150 gm.). In addition, there were numerous acute focal necroses in the spleen which were part of the acute splenic enlargement, and were considered to be the result of the acute and chronic pancreatitis and the acute pericholangiohepatitis. An interesting fact is that terminally the bilirubin was slightly elevated and the hemoglobin had fallen to 10 gm. One could postulate that the patient was in the early stages of an acquired type of hemolytic anemia secondary to hypersplenism resulting from the acute splenic hyperplasia.

Grossly, esophageal varices were found, and microscopically extensive acute and chronic esophagitis with erosion of the mucosa compounds the problem of the varices. Gall described 20 cases of esophageal varices occurring in the absence of cirrhosis and associated with primary and metastatic cancer in the liver and even congestive heart failure. The varices and esophagitis were associated with partially digested blood in the stomach.

Dr. Delp: Thank you. Dr. Friesen, may we have your comments, please?

Dr. Friesen: At operation we found large, matted lymph nodes around the porta hepatis, larger nodes than one ordinarily sees even in metastatic disease. They were soft and large and completely surrounded the portal vein, common duct, and hepatic artery. On cut section they looked like sarcoma.

Also, at operation I saw hepatic metastases, umbilicated nodules within the liver which in themselves are typical of metastases, but they were atypical in that there was a stalk from each of these metastases of tissue growing to the parietal wall. They looked exactly like an inverted atom bomb. I believe that the shift of weight or of position and the weight of this liver on the parietal wall through these stalks probably produced much of the patient's pain on change of motion or of position. I had never seen such stalks before.

Dr. Delp: Dr. Klotz?

Dr. Klotz: A secretion test was attempted on the patient, but he was unable to swallow the tube. Although his temperature was normal, the mass was still as exquisitely tender as it was on admission. The initial gall bladder x-ray showed non-visualization of the gall bladder, and the follow-up intravenous iodipamide methylglucamine (Cholografin) was as Dr. Youngstrom described. My diagnosis was pericholecystic abscess in spite of the x-rays. The iodipamide methylglucamine may not have demonstrated stones that might have produced an inflammatory reaction.

Dr. Delp: A patient's presenting symptoms of fever and a painful mass in the upper abdomen does not immediately suggest carcinoma of the pancreas. Our patient died of erosive lesions in the upper part of the stomach, and I believe that is why he was bleeding. He did not have cirrhosis of the liver, but he did have varicosities. I am certain that the explanation for the varicosities are just those given by Dr. Friesen. The patient did have portal hypertension. I believe the changes in the spleen suggesting fibrocongestive splenomegaly were probably associated with it.

Pathological Anatomical Diagnosis

Carcinoma of the tail of the pancreas with metastases to regional lymph nodes and lungs.

Chronic pancreatitis.

Acute pericholangiohepatitis.

Esophageal varices.

Acute esophagitis.

Reference

Garret, N., and Gall, E.; Esophageal varices without hepatic cirrhosis. AMA Arch. of Path., 55:196, 1953.

Synopsis of Ear, Nose, and Throat Diseases. By Robert E. Ryan, William C. Thornell and Hans Von Leden. Price $6.75. 383 pp. The C. V. Mosby Company, St. Louis, Mo.

This is a concise and standard presentation of otorhinolaryngic pathology. Each section is preceded by a discussion of applied anatomy and physiology. In many instances, the differential diagnosis and treatment is in outline form, and therefore somewhat brief and dogmatic. This is the type of book that would make a quick and convenient reference for the general practitioner, or a text for the medical student. —*R. E. B.*

Maloy's Evaluation of the Pelvis in Obstetrics, 2nd Edition. By Charles M. Steer, M.D. Price $4.00. 131 pp. Illustrated. W. B. Saunders Company, Philadelphia, Pa.

Maloy's evaluation of the pelvis in obstetrics is easy to read and understand. It is also sufficiently short enough that one can read it in one sitting. Yet it gives one the essential facts on which one can adequately approach the problem of difficult labor and make the correct decision as to how the difficult labor should be handled. Those who practice obstetrics should be familiar with its contents.—*J. L. S.*

Surgery in World War II—Neurosurgery, Volume 1. Prepared and published under the direction of Major General S. B. Hays. Price $5.00. 488 pp. U. S Government Printing Office, 1958.

This is the first time a book on neurosurgical principles of this magnitude has been written that is based on statistical data and evaluated by the actual war experiences of twelve outstanding neurosurgeons. In fifteen chapters and over 400 pages of well illustrated material the book deals with all facets of both administrative and clinical care of head injuries. Though concerned primarily with missile injuries to the brain and cranium during World War II, the general principles of diagnosis, treatment, and after care of all head injuries can be admirably used in civilian neurosurgical practice.—*R. C. T.*

Trauma. By Harrison L. McLaughlin, M.D. Price $18.00. 784 pp. Illustrated. W. B. Saunders Company, Philadelphia, Pa.

This book tends to broaden the field of trauma under a single cover in that it includes injuries other than the usual fracture type monograph.

The beginning of the book deals with various phases of the physiology of trauma in its response of the body. This pertains not only to bone and cell repair, but to a systemic response to injury.

The general principles in treatment of trauma should be well digested with careful thought by all types of practitioners.

Trauma of the specific regions not only include the various types of treatment, but a short résumé of the surgical anatomy and complications. Uncommon injuries are also discussed as to the prevention of mismanagement.

Many of the soft tissue injuries which are so often overlooked in fracture books are well handled as to recognition and treatment.

All fields of surgical specialties appear to be encompassed in each of their various types of injuries, but still preserving the relationship with each other for consideration of different approaches to the subject.

Fracture treatment discussions certainly do not present all of the forms of treatment, however, the presented procedures are well recognized as highly acceptable and efficient.

The procedures are not explained in a simple 1-2-3 manner, but with careful consideration as to some of the problems involved in reduction or with surgical intervention.

The completeness of this book without being voluminous makes it quite acceptable for those engaged in the treatment of trauma.—*G. B. J.*

Scientific
ARTICLES

Mass Photofluorography

An Analysis of Its Use for Detection of Lung Cancer

HARRY ALLEN, M.D., M.P.H.,* *and*
IRVIN FRANZEN, A.B., M.P.H.,** *Topeka*

During the last seven years, the Kansas State Board of Health has used state-wide photofluorographic chest x-ray surveys as a means of detecting unsuspected cases of lung cancer as well as tuberculosis and other chest pathology. Lack of funds and personnel however, have made it impossible to conduct an organized follow-up of the suspected cases of malignancy, although each case is reported to the screenee's physician.

Since good public health practice dictates that there should be no screening for disease without provision of adequate follow-up of all suspected cases, it seemed imperative that an analysis of the program be made, in order to formulate recommendations concerning the feasibility of the use of mass photofluorography for the detection of lung cancer and for development of effective follow-up procedures. With this in mind, the following data have been prepared to demonstrate an analysis of the use of mass photofluorography for the detection of lung cancer, as indicated by chest x-rays completed during 1957.

Purpose of the Study

1. To ascertain if it is possible to obtain follow-up information with the available data.
2. To evaluate this method of screening for the early detection of lung cancer.
3. To suggest a method of follow-up within the limits of available staff and funds.

Method

The study involved investigation into the following three areas:

1. Cross-check of all photofluorographic report forms listing suspected malignancy against the state cancer registry which is also maintained by the state board of health.
2. Analysis of the reports of local doctors on suspected cases referred to them.
3. Analysis of the case reports in the state cancer registry.

Results

During the 12-month period commencing on January 1, 1957, and ending December 31, 1957, there were approximately 198,877 persons who took advantage of the chest x-ray service. Of this total, there were 210 or 10.6 lung cancer suspects per 10,000 x-rays.

The private physicians performed examinations and returned reports on 93 or 44 per cent of the 210 suspects. This leaves 117 or 56 per cent of the cases who either did not go to a physician as suggested or for whom the physician did not send the State Board of Health a report.

By careful cross-check with the cancer registry, we were able to confirm 35 or 17 per cent of all suspected cases. This reduced our cases with no "fol-

* Assistant Director, Division of Geriatrics and Chronic Diseases.
** Acting Director, Division of Vital Statistics, Kansas State Board of Health.

TABLE I

STATUS OF THE 1957 PHOTOFLUOROGRAPHIC MALIGNANCY SUSPECTS ON THE BASIS OF THE COMBINED INFORMATION OF THE CANCER REGISTRY AND REPLIES FROM PHYSICIANS

	Number	*Per Cent*
Total suspects	210	100.0
Cases confirmed by the cancer registry	35	16.7
Cases indicated as malignant by the patient's physician but not verified by the cancer registry	3	1.4
Cases reported as non-malignant by the patient's physician and verified by a check of the cancer registry	82	39.0
Cases with no record of follow-up	90	42.9

low-up" information to 90 suspected cases. (See Table I.)

The analysis of the 93 reports returned by the local medical doctors constitutes a reasonably sound sources of follow-up information. The reliability, of course, depends on the ability and diagnostic facilities of the examiner. The results are presented in Table II which is the basis of a proposed follow-up letter to be sent to the doctors.

Analysis of the 35 cases of malignancy confirmed by the registry proved rewarding. These case reports represent metastatic lesions in addition to primary lung cancer. We have made the assumption of a cause and effect relationship in those cases in which the case registry report was made after the date of the photofluorographic study. These cases are indicated by an asterisk on the data sheet. This relationship was noted in 22 or 63 per cent of the confirmed cases. However, ten of this group died within the year, indicating the advanced and hopeless state of the lesion at the time of the x-ray examination. (See data sheet.)

Bronchogenic carcinoma was found in 13 or 37 per cent of the malignancies detected. The average age of this group of patients was 58 years. As could be expected, there was a preponderance of males, the breakdown being 11 males and 2 females. The dismal nature of bronchogenic carcinoma is further indicated by the fact that 7 or 54 per cent were dead within a year following detection. The average length of life from the time of the x-ray examination to death was 7 months. (See data sheet and Table III.)

Metastatic lesions accounted for 22 cases or 63 per cent of the malignancies. The primary cancer site as well as age and sex distribution are to be found in Table III. It will be noted that cancer of the breast and genitourinary tract was first in importance among the metastatic lesions. They accounted for 14 or 46 per cent of the cases detected. The

TABLE II

DIAGNOSES OF PATIENTS AS REPORTED BY PHYSICIANS WHO RESPONDED TO NOTIFICATIONS OF SUSPECTED MALIGNANCIES BASED ON THE MASS X-RAY SURVEY, KANSAS, 1957

	Number	*Per Cent*
Total reports received	93	100.0
Malignant neoplasm*	7	7.5
Other benign neoplasm	13	14.0
Diagnosis pending	15	16.1
No malignancy found	58	62.4

* Three of the cases reported as malignant neoplasms could not be confirmed by the cancer registry while four of the cases not specified as malignant by the reporting physician appear in the cancer registry.

TABLE III

CONFIRMED CASES OF MALIGNANCY AMONG THE SUSPECTS DETECTED BY MASS PHOTOFLUOROGRAPHY BY PRIMARY SITE OF LESION BY SEX AND AGE GROUP

		Sex		*Age Group*								
Primary Site of Lesion	TOTAL	MALE	FEMALE	UNDER 45	45-49	50-54	55-59	60-64	65-69	70-74	75 & OVER	AGE NOT GIVEN
Total	35	20	15	3	1	4	4	8	1	5	4	4
Respiratory system	13	11	2	1	1	2	3	3	—	3	—	—
Genitourinary organs	7	3	4	1	—	—	1	3	—	—	1	1
Breast	7	—	7	—	—	2	—	—	1	1	—	2
Digestive organs	3	2	1	—	—	—	—	1	—	—	1	1
Lymphatic and hematopoietic tissues	3	3	—	1	—	—	—	—	—	—	2	—
Other and unspecified	2	1	1	—	—	—	—	1	—	1	—	—

SUMMARY OF DATA OBTAINED FROM THE CANCER REGISTRY ON SUSPECTED CASES OF MALIGNANCY DETECTED BY MASS PHOTOFLUOROGRAPHY TECHNIQUE

(January 1, 1957-December 31, 1957)

Cases No.	*Age*	*Sex* *Female*	*Male*	*PFX Date*	*Ca Report Registry*	*Primary Site*	*Mortality Report*
1*	71		M	2-14-57	10-57	Lung	8-10-57 Bronchogenic CA
2	55	F		9-9-57	7-49	Cervix	
3*	77		M	10-25-57	6-58	Stomach	6-27-58 Stomach CA
4		F		1-15-57	5-49	Cervix	
5*	54		M	2-25-57	11-57	Lung	
6*	54		M	2-7-57	12-57	Lung	
7	52	F		12-10-57	10-57	Breast	
8*	56		M	5-13-57	5-57	Lung	9-5-57 Bronchogenic CA
9*	49		M	2-8-57	5-57	Lung	4-4-58 Bronchogenic CA
10	65	F		10-8-57	-55	Breast	
11	53	F		12-3-57	3-51	Breast	
12*	60		M	8-20-57	12-2-58	Thyroid	
13*	71		M	5-21-57	11-57	Lung	11-1-57 Bronchogenic CA
14	80		M	11-6-57	10-55	Leukemia	
15*		F		2-27-57	11-57	Colon	
16*	61		M	1-30-57	8-57	Lung	
17*	38		M	6-4-57	8-57	Kidney	
18*	62		M	5-7-57	8-57	Lung	10-18-57 Bronchogenic CA
19*	57	F		5-14-57	12-5-58	Breast	
20*	89		M	4-10-57	12-1-58	Prostate	
21	63	F		2-6-57	10-54	Cervix	6-21-57 Cervix
22*	55		M	10-3-57	6-58	Lung	
23	60	F		4-22-57	2-54	Cervix	
24*	73	F		9-12-57	12-57	Breast	
25*	30	F		5-22-57	8-57	Lung	12-3-57 Bronchogenic CA
26*	63	F		4-15-57	10-57	Colon	
27*		F		2-8-57	7-57	Breast	7-7-57 Breast CA
28	59	F		12-4-57	5-57	Lung	
29*	71		M	6-17-57	1-58	Lung	1-8-58 Bronchogenic CA
30	78	F		10-17-57	1-55	Lymphosarcoma	12-29-57 Lymphosarcoma
31	73	F		6-21-57	5-54	Bone	
32*	60		M	11-7-57	8-58	Kidney	5-27-58 Kidney
33		F		2-27-57	11-55	Breast	
34*	61		M	10-11-57	5-58	Lung	
35	35		M	11-18-57		Hodgkins Disease	

* Indicates cases apparently diagnosed because of chest x-ray findings, and referral to physicians.

predominance of females is to be expected in this group of cases. The sex distribution was 3 males and 11 females with an average age of 60 years.

Conclusions

It is acknowledged that the total number of cases confirmed by the registry are few; however, we believe the following conclusions are of value in planning and developing the cancer control program:

1. Screening for malignancy by means of mass photofluorographic techniques should be continued only if there are provisions for follow-up of suspected cases.

2. The case-finding rate of suspected cases of malignancy was found to be 10.6 per 10,000 x-rays. This yield is extremely low, which makes the technique of questionable value as a screening procedure.

3. It is generally conceded that by the time bronchogenic carcinoma becomes visible on x-ray, the patient is already incurable. Our results confirm this finding to some extent because 54 per cent of the cases expired within the year following the x-ray examination. The average length of life after the chest x-ray was 7 months. This lends further support to the belief that the technique is of questionable value.

4. Twenty-two of the confirmed cases represented metastatic lesions. It appears that x-ray detection of these lesions may increase the life expectancy by the prompt institution of palliative therapy.

5. In the dismal picture presented by bronchogenic carcinoma, the only hope appears to be in prevention and early detection. Preventive measures include the avoidance of cigarette smoking and exposure to carcinogenic agents. The only mass technique available at present for discovery of beginning cancer is the photofluorogram. It is believed there is a moral obligation to continue this screening method in the hope that cases will be discovered early and brought under adequate medical supervision. It is acknowledged not to be an economically practical screening method for cancer case-finding alone. However, one cannot overlook the value of photofluorographic surveys, nor ignore the cases of suspected malignancies in the chest detected in the overall search for diseases of the chest, including tuberculosis and heart disease.

Recommendations

1. A follow-up of suspected cancer cases can be provided efficiently and economically by use of the cancer registry and follow-up correspondence with the local medical doctors.

2. District public health nurses could provide follow-up on suspected cancer cases.

3. Although we do not recommend discontinuing the use of mass x-ray for the detection of lung cancer, we strongly suggest that the screening be on a selective population basis, examples being: 1) all persons smoking more than two packages of cigarets daily; 2) persons whose work entails inhalation of coal tar or its derivatives; 3) those who drive daily for rather long periods in crowded city traffic, inhaling air heavily polluted with automobile exhaust gases.

Kansas State Board of Health
Topeka, Kansas

Author's Note: A similar analysis of the 1958 photofluorographic survey confirmed the above findings. Through the cooperation of the local physicians, we are able to obtain follow-up information on 82 per cent of all suspected lung cases in 1958 as compared to 44 per cent in 1957. This indicates that the follow-up procedure instituted is an efficient and essential component of the program.

Merry Christmas

and a

Happy New Year

THE JOURNAL OF THE
KANSAS MEDICAL SOCIETY

Hyperthyroidism in Pregnancy

Treating Hyperthyroidism During Pregnancy Without Impairing Fetal Thyroid

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The hyperthyroid woman must be treated during pregnancy in a manner that will not impair the normal physiology of the fetal thyroid. The following methods have been most widely used for the management of thyrotoxicosis in pregnancy:

1. Administration of iodine alone.
2. Administration of iodine followed by subtotal thyroidectomy.
3. Administration of anti-thyroid drugs during part of or throughout the pregnancy.

The above measures have been discussed with regard to advantages and disadvantages quite completely.[4] Subtotal thyroidectomy following preparation with iodine has been clearly shown to be a safe procedure. In several series from 1930-1952, totalling 117 cases, there was a fetal loss of four and no maternal deaths.

The anti-thyroid drugs of the thiocarbamide group are, in contrast to iodine, capable of controlling even the most severe hyperthyroidism, but since these drugs cross the placenta, the fetal thyroid is also susceptible to their goitrogenic and anti-thyroid effects.

Frequent fetal loss and abnormalities have been reported when anti-thyroid drugs were used throughout pregnancy.[3,9] Some reports have shown that thyrotoxicosis during pregnancy responds more readily to anti-thyroid drugs than does thyrotoxicosis without pregnancy. If sufficient but not excessive doses of anti-thyroid drugs are administered under close observation, insignificant amounts pass through the placenta and fetal goiter is avoided.[1]

High Incidence of Fetal Anomalies

Both uncontrolled hyperthyroidism and uncontrolled hypothyroidism are accompanied by a high incidence of fetal anomalies and monstrosities and late complications of pregnancy.[3] The hyperthyroidism can be quickly terminated with little risk to the mother by the use of anti-thyroid drug preparation and subtotal thyroidectomy. Patients treated in this manner must be observed closely for any signs of decreased thyroid function and if present, treated promptly with desiccated thyroid and strong iodine solution. Even transient maternal hypothyroidism must be prevented during pregnancy to prevent fetal abnormalities. It is recommended to reduce the dosage of propylthiouracil during the last trimester, and to give desiccated thyroid to any woman who develops hypothyroidism from surgical or medical treatment for hyperthyroidism during pregnancy.

Subtotal thyroidectomy after preparation with thiocarbamides and iodine can be done safely during the first two trimesters with little risk to the patient and with remission of the hyperthyroidism. Full term infants born to such patients have been normal. Used properly the undesirable side effects of anti-thyroid agents on the mother and fetus have not been substantiated as previously reported in the literature.

Hyperthyroidism in pregnancy treated by administration of anti-thyroid drugs followed by surgery is discussed in this article.

Large doses of thiocarbamides are to be avoided and prolonged use of them is to be discouraged. The shorter the period of fetal contact with these drugs the better. In good hands the safest method of management is surgery after proper preparation with thiouracil-related drugs and iodine for short periods.[8]

Primary and Secondary Hyperthyroidism

The occasional patient with primary or secondary hyperthyroidism who becomes pregnant, should be treated for the hyperthyroidism, disregarding the pregnancy except where therapy might be injurious to the fetus. There no longer seems to be any reason for terminating pregnancy because of the thyroid complications. Patients who develop a hyperthyroid state late in pregnancy may be tided over safely with the thiouracil-related drugs because the fetal exposure to these drugs will be for a short duration only. Concomitant thyroxin therapy would afford protection against drug induced cretinism.[8]

Infants born to mothers receiving propylthiouracil may show an enlarged thyroid gland, which may ob-

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struct feeding and breathing, and predisposes to the development of cretinism. This is especially true in the infants of mothers who have been treated with large doses of propylthiouracil throughout the pregnancy.[11]

Once a diagnosis of hyperthyroidism has been established, therapy for the pregnant patient must of necessity be different from that of the non-pregnant individual in as much as the following are known to cross the placental barrier; iodine, I^{131}, anti-thyroid drugs of the thiourea type, and desiccated thyroid.

Radioactive iodine uptake as a measurement of thyroid function has been used with increasing frequency during the past ten years. The use of this test in the pregnant patient is not considered inadvisable when minute doses of I^{131} are used as there is little evidence that a tracer dose is harmful to the fetus. The main contraindication is the medicolegal aspect in case a malformed child were born. However, it is generally considered inadvisable to use I^{131} to decrease thyroid function during pregnancy because it has been noted that after the third month the fetal thyroid collects significant amounts of radioiodine. Treatment with therapeutic doses of I^{131} is for the present contraindicated during pregnancy and lactation.

Two cases are reported by Russel, et al., in which pregnant women received large doses of I^{131} and both offspring suffered from congenital hypothyroidism. It should be noted that both mothers had previously undergone total thyroidectomies for papillary carcinoma of the thyroid. This situation in no way parallels the use of I^{131} as a diagnostic aid in hyperthyroidism in pregnancy.

Case Reports

Case 1 (Mrs. M. S.). This 30-year-old white woman had a history of known hyperthyroidism of some seven months duration. She was first seen in consultation in March, 1952, and at that time the BMR was +41, the weight 150 lbs., blood pressure 150/80, pulse 86, serum cholesterol 119 mgm. per cent. A diagnosis of multiple colloid adenomatous goiter with secondary hyperthyroidism associated with pregnancy was made. At that time the patient was approximately four months pregnant. While under medical treatment the BMR rose to +71 and preoperatively was reported as +16. After 30 days of preparation with propylthiouracil the patient became euthyroid and the last ten days of her preparation was changed to iodine solution. On May 6, 1952, a bilateral subtotal thyroidectomy was done at which time the patient was five and one-half months pregnant. The pathological diagnosis was reported as nodular nontoxic goiter. The patient's postoperative course was entirely uneventful and she was followed closely for the remainder of her prenatal period by her obstetrician, who delivered a normal infant on August 20.

Case 2 (Mrs. N. S.). This 23-year-old white woman was first seen in consultation on October 14, 1957. She had a four month history of primary hyperthyroidism, and on August 9, the PBI was reported as 55.0 gamma per cent and the radioactive tracer study was compatible with diffuse hyperthyroidism. Preparation was with propylthiouracil and iodine in the later stages. Her last menstrual period was September 4. The patient was found to be euthyroid and with early pregnancy confirmed by pregnancy tests. On October 15, a bilateral subtotal thyroidectomy was done at which time the patient was considered to be one month pregnant. At operation there was diffuse enlargement of both lobes of the thyroid gland and the pathological report was adenomatous goiter with hyperplasia. The patient's postoperative course was entirely uneventful and she was followed in the remainder of her prenatal period by her family physician, who delivered a normal infant at term.*

Case 3 (Mrs. N. R.). This 27-year-old white woman had a past history of thyrotoxicosis for approximately six months. Her last menstrual period was on June 22. On June 16, a radioactive tracer test was done which revealed an elevated uptake of iodine by the thyroid gland and a decreased excretion of the iodine in the urine. The protein bound iodine was 14.1 gamma per cent. She had the classical symptoms of primary hyperthyroidism and on July 16, preparation with propylthiouracil was begun. After having amenorrhea for two and one-half months an Aschheim-Zondek test was done which was reported as negative. In October the pregnancy test was repeated and reported as positive and the patient was considered to be four months pregnant. At that time the protein bound iodine was reported as 10.1 gamma per cent. After four months preparation with anti-thyroid drugs with iodine solution in the later stages of the preparation, the patient was considered to be euthyroid. On November 12, a bilateral subtotal thyroidectomy was done. At the time of operation the patient was five and one-half months pregnant. At surgery the gland was found to be diffusely enlarged and quite vascular. The pathological report was returned as adenomatous goiter with hyperplasia of the thyroid gland. The patient's postoperative course was entirely uneventful and she was discharged four days postoperatively. During the remainder of her prenatal course she was followed quite closely without evidence of clinical hypothyroidism. The protein bound iodine on two occasions was reported as 7.0 gamma per cent. On March 22, she was delievered by her physician. The infant was

* Case 2 included through courtesy of Dr. D. M. Thompson.

normal without any evidence of thyroid enlargement. A cord blood was drawn which was reported 7.8 gamma per cent protein bound iodine.

Case 4 (Mrs. J. E.). This 27-year-old woman was first seen on September 22, at which time she was found to have primary hyperthyroidism and to be five and one-half months pregnant. The advice of anti-thyroid preparation followed by surgery was refused by the patient and the patient's hyperthyroidism was treated with 200 mg. of Itrumil® daily. The anti-thyroid medication was taken irregularly by the patient and completely discontinued the last month of her pregnancy. On December 15, the patient was delivered of a live, male infant, seven lbs. and five oz. The delivery was spontaneous and a frank breech presentation. The infant was microcephalic and this diagnosis was confirmed by pediatric and neurosurgical consultation. This patient's postpartum course was uneventful and follow-up examination three years later revealed the primary hyperthyroidism to still be present and the patient disregarded advice concerning anti-thyroid medication and surgery.*

Case 5 (Mrs. E. D.). This 23-year-old white woman was first seen on September 20. At that time there was a non-toxic diffuse goiter with a Grade III enlargement and the patient was eight months pregnant. On October 24, she delivered a normal female child. On October 27, a bilateral subtotal thyroidectomy was done and the pathological report was returned as diffuse colloid goiter. On the fourth post-operative day and seventh postpartum day the patient was discharged from the hospital.

Discussion

Pregnancy itself, minus any hyperthyroidism, is normally a hypermetabolic state and it should be remembered that some pregnant women may have PBI values of 11 or 12 and BMR's of +15 or +20 and have no apparent thyroid disease.[13] In addition some women may have clinical signs of hyperthyroidism to the extent of thyroid enlargement, tremor, tachycardia, etc., yet not have active thyroid disease because there is normally an increased demand for thyroid hormone during pregnancy.

Four cases of hyperthyroidism in pregnancy have been presented. Three cases were treated by the administration of anti-thyroid drugs followed by subtotal thyroidectomy. The fetal and maternal life loss was zero.

During preoperative medication hypothyroidism was carefully avoided. During the postoperative prenatal period careful and frequent examination of the mothers failed to reveal any evidence of hypothyroidism. None of the infants revealed an enlarged thyroid gland and follow-up reveals that none have developed cretinism.

Case 3 was found to have a PBI of 7.0 gamma per cent during her last month of pregnancy and this low figure could represent hypothyroidism.

Case 4 was first seen at which time she was five and one-half months pregnant. Two months therapy with moderate dosage of the anti-thyroid drugs was used. The patient did not take her medication regularly and it is most likely that the fetal monstrosity can be attributed to the uncontrolled hyperthyroidism.

Case 5 of a nontoxic diffuse goiter associated with pregnancy has been included in this series only to emphasize conservative management of thyroid disease during the last trimester of pregnancy. This patient avoided a second hospitalization by having a thyroidectomy a few days after delivery with no increase in the length of hospital stay for routine maternity cases.

Summary

Four cases of hyperthyroidism in pregnancy have been presented. Three cases were treated by administration of anti-thyroid drugs (thiocarbamides) followed by subtotal thyroidectomy. There were neither late complications of pregnancy nor fetal abnormalities. Careful preparation with the thiourea derivatives followed by surgery is found to the a safe method of management in the first two trimesters of pregnancy.

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*Cases 1, 3, 4 and 5 included through courtesy of Dr. E. G. Anderson.

Workmen's Compensation

The Rights, Privileges and the Obligations For Physicians in Kansas—Part I

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It is important for the injured workman and the doctor to have knowledge of "The Workmen's Compensation Law" of Kansas, just as it is for the serviceman to have some knowledge of "The Articles of War." It is just as important to work up efficiently the "case record" of an injured workman as "the 201 file" of the serviceman. Realizing this, the State of Kansas has published a handbook, "Workmen's Compensation Law," which was last compiled in 1955. It is not only for lawyers, but for doctors and workmen, and it shows how far advanced our own legislation is in this field.

Prior to 1911, in the state of Kansas, the burden of industrial accidents (and certain occupational hazards and diseases) such as actual injury, illness, medical and hospital expenses, and loss of wages was borne entirely by the worker himself, except in those instances where the employer was conscious of a moral obligation to his employees. Workmen's compensation law is a social reform which provided legal machinery enabling the worker to get adequate protection, treatment, and rehabilitation. This country lagged behind other countries in this type of legislation. Germany in 1883; Austria in 1887; Great Britain in 1897; Denmark, Italy, and France in 1898; and Russia and Belgium in 1903; all enacted their first workmen's compensation laws. Many laws of this nature were introduced in the various states, but they were all declared unconstitutional until Wisconsin, Washington, and Kansas in 1911 passed permanent workmen's compensation laws.

The specific purpose of the act, as related to the medical profession, was that the worker should get complete and adequate treatment, not as a "charity case," not even as a "clinic" case, but to receive the individual attention of the doctor as a "private patient." Indeed, even more so since, because of the final disability evaluation, the result was more open to public scrutiny. This changed the entire status of the injured worker treated under compensation law. The doctor was no longer donating his services, in part or in whole, but was receiving "full payment." This was an elevation of "the stature of man." It is interesting to note that the first principle of the code of ethics of the American Medical Association is:

"The principal objective of the medical profession is to render service to humanity with full respect of the dignity of man. Physicians should merit the confidence of patients entrusted to their care, rendering to each a full measure of service and devotion."

Although the employer was liable for a certain maximum medical expense in any one accident, in 1911, there was no bona fide schedule of fees. There were many defects in the law at that time. As soon as the maximum medical expense was reached, treatment was stopped as far as the employer was concerned. Cases had to be settled by arbitration, or by court action which would use juries composed of persons who had not the slightest idea about trauma, and its relationship to disabilities. This was costly to the workman, but not to the employer. Many amendments were necessary, but this act of 1911 was a good first step: the workman had elevated his stature as man, and amendments did follow to protect him.

A presentation of some important provisions of our Workmen's Compensation Law and a discussion of the ways in which the physician is involved—his obligations and his rights. The importance of moral integrity to insure the best treatment and ultimately the best disability evaluation for the workman. The next issue will conclude the article.

In 1927 the State of Kansas passed a law which created the workmen's compensation commissioner. This was achieved by adding another member to the Labor Board, this additional member to act as the workmen's compensation commissioner. In 1939 when the labor law was amended, and the labor board was abolished, a further act created the workmen's compensation commissioner as a separate and distinct administrator. This was a milestone in the progress of workmen's compensation law.

The creation of a workmen's compensation com-

missioner enhanced the principles of the law because now there was created an agency with personnel that could study the problems in traumatic medicine and surgery, and could interpret the law relating to sequelae and disabilities resulting from accidents and certain occupational diseases. This step was important since new members of the legal profession sometimes interpret the law differently—mainly to the gain of their own clients. Here also was an excellent medium through which to further captivate the attention of the medical profession to this field, since all doctors were not sold on the idea then; nor are they all sold on the idea today. Only through self-sacrifice of the medical profession could such a law be successful.

The workmen's compensation commissioner immediately made contact with the Kansas Medical Society (1927). Special committees (appointed by the medical society) had many meetings with the commissioners and there was jointly established what was then considered *a fair schedule of fees.* There were no catches in this. It was desired that the worker be considered as a "private patient," and hence a working schedule of fees was established. Like procedures could, by comparison, be given a reasonable value. To catalogue all medical procedures then in use, and particularly those that might arise in the future, would be almost impossible. The medical expense of each procedure was arranged so as to be acceptable in the vast majority of cases, and amendments were allowed in certain exigencies. The right to pro-rate fees for the doctor and hospital were agreed to by the medical profession. This meant a sacrifice on the part of the doctor in comparison to private patient fees even though he considered the patient as a private case. This sacrifice is poorly understood by employers, or their carriers, and even members of the legal profession.

All thru the years, there has been the utmost of cooperation between the medical profession and the workmen's compensation commissioners. The schedule of fees for medical services is listed in the handbook of the State of Kansas in section 51-9-7. Even though some of these fees were established about 25 years ago, they still remain and are honored by the medical profession. There have been amendments. It is to be noted that once an amendment is approved by the commissioner, there is legal machinery whereby it becomes "law." It can only be changed by further amendment of the law.

The relationship of the medical profession to workmen's compensation law is summarized in the first paragraph of section 44-510 of the handbook, previously mentioned. There have been many misinterpretations by the employer, his insurance carriers, and lawyers, of this portion of the law. This will be a careful explanation of the original concepts, which serve for the protection of the doctor, employee, and the employer. It is not a "legal exposition" but an explanation of the original concepts of the medical profession in their cooperative effort to protect the workingman. The first paragraph in the handbook, section 44-510 reads:

"**TREATMENT AND CARE OF INJURED EMPLOYEES.** It shall be the duty of the employer to provide the services of a physician or surgeon, and such medical, surgical, and hospital treatment, including nursing, medicines, medical and surgical supplies, ambulance, crutches, and apparatus, as may be reasonably necessary to cure and relieve the workman from the effects of injury; but the cost thereof shall not be more than twenty-five hundred dollars ($2,500) nor shall the period of time during which same are to be provided exceed one hundred and twenty (120) days from the date of the accident:

PROVIDED, that in extreme cases the commissioner may, after proper showing, require the employer to provide medical, surgical, and hospital treatment for a longer period than said one hundred and twenty (120) days:

PROVIDED FURTHER, that all fees and charges under this section shall be fair and reasonable, shall be subject to regulations by the commissioner, and shall be limited to such as are fair and reasonable for similar treatment of injured persons of a like standard of living. The commissioner shall have jurisdiction to hear and determine all disputes as to such charges. No employer shall be liable for any medical, surgical, or hospital treatment, including nursing, medicines, medical and surgical supplies, ambulance, crutches and apparatus, nor for any physician's or surgeon's fees in excess of the amounts hereinbefore expressed. If the employer has knowledge of the accidental injury and refuses or neglects to reasonably provide the benefits herein required, the employee may provide the same for himself and the employer shall be liable for such expense subject to the limitations herein expressed.

PROVIDED FURTHER, that if the services of the physician or surgeon furnished as above provided are not satisfactory to the injured workman, the commissioner may authorize the appointment of some other physician or surgeon, subject to the limitations as to total charges for the benefits in this section provided and the period over which same shall extend as hereinbefore expressed."

The underlining is used to indicate the original "standard section," and the three added sections which represents amendments. The amendments are added provisions, over and above "the standard section."

The first section of this paragraph which begins: "It shall be the duty of the employer . . ." is the standard section and needs no explanation, and for which there is a definite schedule of fees, described in section 51-9-7 of the handbook.

The second section of this paragraph which reads in part: "PROVIDED, that in extreme cases . . ." is an amendment, or an added provision, over and above that in the first section. The "maximum of 120 days" goes back to the early ideas in the practice of medicine; when it was customary to allow certain periods of time for the healing of an injured structure, such as three weeks for one fracture, six weeks for another, with about three months for a fracture of the femur, etc. During the period of 1911-1927 (before the establishment of the workmen's compensation commissioner) such periods for healing were even given under "prognosis" in certain textbooks of surgery. The medical profession soon found that this was fallacious, particularly as there developed a group of specialists, called orthopaedic surgeons. Indeed, compensation law had much to do with the tremendous growth of this group. *There is no true average healing time* since each case differs from another. Everything depends upon the individual case, complications encountered, the time element, etc. A fracture has no set time in which it *must* heal. It may be healed in six weeks; it may not be healed in six months; it may not be healed in a year or two or more. The fact that we have no means of identifying soft tissue structures with the same exactness as we have in bone (by means of x-rays) makes injury of these structures no less individual problems. The more experienced traumatic surgeon gives no exact healing period beforehand. For example, in his second edition, "Shoulder Lesions," published by Paul B. Hoeber and Co., Inc., in 1953, Dr. H. F. Mosely, on page 254, in discussing reeducation in stiff and "frozen" shoulder states, "The time taken to effect a cure may vary from a few weeks to two years." The human body is not a machine like an automobile, where, when a part is damaged, it can be removed and a new part put in to replace the old. In truth, there are no such things as "new feet for old." In the human body, there is a tremendous number of variables, and superimposed on top of this all is the nervous system.

Workmen's compensation law is a social reform, the object of which is to afford protection to the workman. The commissioner has the power to lengthen this healing period of "120 days"; and there is then no limit set as to the amount of time involved. Credence and faith are expressed that the commissioner will give proper lengthening of this period. Once he has, then it is law, unless and until some higher court is appealed to (by the employer or his insurance carrier) in order to set aside this ruling (and this has to be done within a certain period of time). It is seldom, indeed, that a higher court would interfere with such a clear-cut administrative power of the commissioner.

The third section of paragraph (1) of 44-510 of the handbook which begins: "PROVIDED FURTHER, That all fees and charges under this section. . ." includes two additional provisions in this amendment, over and above the first standard section. They both require careful explanation since they have been so frequently misinterpreted that legal experts seldom arrive at the same opinion (not realizing that this was part of the original agreement with the medical profession).

An added provision is embodied in:

"**PROVIDED FURTHER,** That all fees and charges under this section shall be fair and reasonable, and shall be subject to regulations by the commissioner, and shall be limited to such as are fair and reasonable for similar treatment of injured persons of a like standard of living."

The first standard section is governed by a schedule of medical fees, described in section 51-9-7 of the handbook. This added provision has no schedule of fees, since it applies to certain extenuating circumstances. Since this would be controversial, it is further stated:

"The commissioner shall have jurisdiction to hear and determine all disputes as to such charges."

In this amendment, there is no exact amount delineated as "the maximum medical expense." It follows the amendment wherein the commissioner can lengthen the period of 120 days. There is, therefore, no maximum either in the period of time or in the amount of expense. This added provision is not a superfluous one. There are instances in which certain of the necessary treatment procedures may dissipate the entire maximum amount for medical expense ($2,500), embodied in the standard section, which cannot be pro-rated. Take, for example, a severe multiple injury case, where around-the-clock nursing is required for a prolonged period of time. The hospital does not guarantee nursing care of severely injured patients; they have the right to request that the doctor supply private nurses; the doctor usually requests this before the hospital can demand it. The Kansas Nursing Association has never agreed to comply with workmen's compensation law. Therefore, there is no way in which the employer (or his carrier), not even the compensation commissioner, can pro-rate the fee for private duty nursing care. The fee for private duty nursing at this time is $16.00 for each eight hours. This would amount

to $48.00 per day. In 52 days, the entire maximum medical expense would be exhausted. Does this mean that the doctor and the hospital must continue the treatment until maximum of improvement has been achieved, with no recourse at all? This is where this particular provision can be invoked. There is no schedule of fees, but the law is specific as to what charges the doctor can then make.

While private duty nursing is the main drag upon upsetting of maximum medical expense, there are others. There is no law which can force a drug store, or bracemaker, or artificial limb company, or corset company to conform to the pro-rating of charges. Indeed, most of them require payment on delivery, or the doctor or some responsible person must guarantee payment. Where, due to pro-ration, the medical fees become lower than those charged for the treatment of similar injury in an injured person of a "like standard of living," then this provision can be invoked, according to the original concept. This is an excellent added provision, and further protects the workman (and the employer as well) since it guarantees uninterrupted treatment of the injured workman so as to enable a total (temporary) disability to reach maximum improvement. It is cost-saving and not cost-expanding. The commissioner must review all charges under such extenuating circumstances.

The second provision in this third section "If the employer has knowledge . . ." is a precursor to the amendment in the fourth section of paragraph (1) of 44-510 of the handbook. It has to do with "the irrevocable necessity of the worker to abide by the decision of the company doctor"; this latter really goes back to the period 1911-1927. It has been kept on the statute books, but there have been amendments.

The old contention of the insurance company executive (and employer) was that he had better knowledge of which doctor to choose for the particular work to be done (specialist). The claim was made that the right choice of doctor (1932) would afford the best treatment; that specialists were few and far between; that the right choice was good not only for the employer, but, above all, for the workman. If this were true, then it was, indeed a humanitarian motive. However, regardless of the true motives which originated this in the law, soon there was necessity for amendment. The first such amendment was a mild one, and is found in section 51-9-1 of the handbook:

"It is urged that medical and hospital care should not be stinted for the reason that the avowed purpose of such is to bring an end to disability, hence compensation, and put the injured party back to work. Therefore, employers and insurance carriers are encouraged not to confine themselves to their legal liabilities with regard to medical and hospital, but to maintain a liberal attitude, it being felt that it is to their own benefit in the long run. It is a service being rendered to bring about the cessation of compensation."

There are many employers, insurance carriers, their representatives, and lawyers who have maintained this liberal (and humanitarian) attitude. But, while time is relative and stands still, humans change. Soon there was the necessity of putting *teeth* into this urging. In the same section of 51-9-1 of the handbook:

"Attention is called to the wording of the act: 'It shall be the duty of the employer to provide the services of a physician. . . .'

"It is, therefore, the duty of the employer to provide medical services, and if he is derelict in providing such services, then the employee is warranted in going to a doctor of his own choice and the employer will be liable for such services rendered."

From the angle of the medical profession, all interpretations must consider the precepts for the law (the original agreement with the medical profession), the intent of the law, and the precedent after the law. Obviously, the interpretation prevalent during 1911-1927 will not hold in 1959: the standard of living has been greatly elevated; workmen's compensation law has been continually amended in favor of the workman; the entire practice of medicine has changed, and changed greatly.

Some members of the legal profession, executives of insurance companies, and employers have never fully realized the tremendous change in the practice of medicine in the last 25 years. A lawyer, once he gets his diploma, is at once a "practitioner of law"; there is no interneship, assistant residency, residency, fellowship, or clinical assistancy comparable to that in the medical profession. Even the general practitioner in medicine usually now has two years of postgraduate interneship or residency; he is constantly urged to take refresher courses from time to time; he is under constant surveillance on the hospital staff (self-imposed). Specialists must now have the diploma from specialty boards, signifying not only adequate postgraduate training but that they have passed higher examinations in their field. They are regulated on the hospital staff (self-imposed). Specialists, however, are for the difficult and complicated cases, and not for the general run of cases of injury (or disease). The doctor-patient relationship is again coming into its own. An excellent editorial in the JOURNAL OF THE KANSAS MEDICAL SOCIETY of October 1958 states:

"As the world changes, so does the practice of medicine. Years ago, the physician was primarily a family doctor possessed of deep understanding and practical wisdom, but with not more than a handful of really effective weapons against disease. Now the doctor has a wealth of amazingly effective therapeutic agents and improved technics for the diagnosis, prevention and treatment of diseases.

"It appeared for a time that rapid strides in science of medicine would submerge the ancient art of the physician. Fortunately, however, the art of medicine has been saved by the physicians themselves, because they realize they need to know people, their worries and problems, almost as well as they know physical signs and symptoms."

Not only has there been an elevation of standards; not only has there been a return to the *art* as well as the *science* of the practice of medicine, but even with reference to specialists, there has been ample multiplication of their number, so that adherence to one specialist can no longer be explained along humanitarian motives. The "doctor-patient" relationship is a fundamental basis for adequate treatment. However, even this large number of specialists would be inadequate to treat all the cases. Knowledge is being disseminated to the general practice, with freedom and courtesy, and with "no strings attached." In an editorial in the journal *Orthopaedics*, November 1958, the following is stated:

"There are over 65,000 general practitioners, over 10,000 general surgeons, over 6,000 pediatricians, and about 3,000 orthopaedic specialists. These take care of approximately 175,000,000 people in the United States. It is reasonable, therefore, to assume that much of the treatment of orthopaedic cases is done by those other than orthopaedic surgeons, and it is up to the latter to help improve, wherever possible, the care administered by the former."

In all approved hospitals, there are accreditation committees who gauge the ability and training of the doctor. Where this is insufficient, consultation is requested (and this again is a self-imposed requirement). The medical profession has been free in raising its own standards, and determining the ability of its own members, for the protection of the public. However, "monopoly" practice is not tolerated.

The public is well cognizant of this progress. The doctor-patient relationship is held as the most important principle in the code of ethics of the American Medical Association. In a survey conducted by Opinion Research Corporation, Princeton, N. J., for the American Medical Association, 76 per cent of the people believed the individual's right to chose the physician of his choice is extremely important, even under economic pressure; and 88 per cent believe the continuity of the doctor-patient relationship is vital to good medical care (see the *AMA News*, Oct. 20, 1958).

In section 51-9-1, there is also:

"If the employer has done his part in providing medical care and the employee does not avail himself thereof, but goes to a doctor of his own choosing, the employer will not be liable for any such medical service."

By some, this has been interpreted as negating all that went before. From the medical aspect of workmen's compensation law this is incorrect. This is inserted to protect the employer if the patient should refuse specialized type of care (where such care is essential) and prefers inadequate care which jeopardizes the final result. The aspects of "reasonableness," "dereliction," and "derelict" remain for interpretation by the commissioner. The State of Kansas has indeed been fortunate in the commissioners who have acted to protect the workman at all times, whether represented by legal counsel or not. At times, this has not been simple since testimony from doctors varies greatly at times.

Doctors are human beings, and like all human beings have different traits and characteristics, which to some extent are molded by the particular type of training received in undergraduate and postgraduate studies. No two doctors need think exactly alike. One doctor may resort to radical surgery early; another doctor may be conservative in his approach to the same problem. Both may achieve the same end result. One doctor may take much pains in explaining the pathology present and the type of treatment advisable; another doctor may feel that it is not to the advantage of the patient to know; both may achieve the same end result. Some doctors speak of cure, and honestly believe they have achieved a cure, regardless of the patient's remaining symptoms. Other doctors speak mainly of maximum improvement, and infrequently of cure. Both are sincere and honest in their beliefs.

The first group explain remaining symptomatology on the basis of neurotic temperament, compensationitis, or even malingering. The claim is made that once the case is settled, the patient will cease complaining. There is no question that in a certain percentage of cases this is correct. But, this has done much to disturb public relations between the medical profession and the public; especially since, over the years, continued studies have shown that in many instances complaints have not ceased (some of these cases have later become clients of welfare agencies, vocational rehabilitation services, or even county cases). In truth, there is an adaptation of many settled cases

to environment, since the patient *has* to return to work, and further complaints would be detrimental to the workman in a competitive labor market. A worker might have an amputation of a leg, be finally fitted with an artifical limb, and be able to adapt to his environment satisfactorily; nonetheless, the disability does remain, and with certain syndromes; symptoms can flare up at any time and under much more trivial circumstances. The second group, therefore, prefer not to speak of cure.

There are so many variable factors, once definite pathology has been diagnosed, this group honestly believes that few of them return to absolute normal. Each pathological incident is cumulative. A frequent example is the boxer. If a boxer is knocked out, and sustains a brain concussion, and recovers from the concussion, but with remaining symptoms such as headache, or dizziness, or nervous instability, there has not been an "absolute cure." There are no objective findings at all; yet each subsequent injury leaves its mark, until finally he may become "punch drunk." In this final stage, of course, there may be all kinds of objective evidence. Diagnosis is then simple. The crux of the problem is to make the diagnosis in the early stages (and to prevent this stage of objectivity).

That no two doctors think alike is not unethical; rather it demonstrates the honesty and integrity of the medical profession. Independence of thought and honesty of purpose is the goal. In 51-9-8 of the handbook, this is stressed:

"Where a physician is testifying at a trial he should be independent as to his opinion. He should not follow the opinion of another physician he has heard testify, but he should give his own independent judgment and stick with it. If attorneys argue with him as to his opinion, he can always answer by saying that the estimate is an opinion of his own on a question on which he has been called to give his best impression, and having done so, it can be taken for what it is worth by the attorneys or by the court."

Conformists cannot be true to their profession. Each doctor must base his opinion upon his *own* investigation, consisting of a thorough history and physical examination, using laboratory procedures as adjuncts.

(Dr. Pusitz's article will be continued in the January issue of the JOURNAL.)

628 Mills Building
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BACK THE ATTACK On Traffic Accidents WITH THESE SPEED RULES

- Drive at a speed that will enable you to stop in the assured clear distance ahead.
- Slow down before you get to curves and intersections.
- At night, drive at the speed which will let you stop within your headlight range.
- Drive with traffic. You are probably going too fast if you are passing many cars—too slow if many are passing you. Where children are playing, be able to stop in a car length or less.
- When you're tired or inattentive, stop.

Typhoid-Like Infection

From a New Non-Motile Gram Negative Rod Pathogen

NOBLE P. SHERWOOD, M.D., *Lawrence*

The case from which this new organism was isolated illustrates the need for great care and cerebration in the interpretation of the physical and clinical laboratory findings in suspected typhoid fever or even brucellosis. The salient features of the case were as follows:

A physician was called in to see a 40-year-old white male whose temperature was 102°F., the other findings being essentially negative. He was admitted to a hospital where it was found that he had a leukopenia with a relative lymphocytosis. His blood culture yielded a plump non-motile, or apparently non-motile gram negative rod that was agglutinated by anti-typhoid rabbit serum. The physician made a tentative diagnosis of typhoid fever caused by an atypical non-motile strain of Salmonella typhosa. The results of further studies, by the author, of the organism in question may be briefly summarized as follows:

Summary of Results

1. The results of a Gram stain, motility test, morphology and flagella stains revealed that the organism was a plump gram-negative, apparently non-motile rod that possessed a single polar flagellum. (Figures A and B, on plate I.)

2. The organism did not require CO_2 for growth on either plain agar or blood agar. On both of these solid media it readily dissociated thus forming both butryous smooth colonies and rough colonies as shown in figures C and D on plate I.

3. The organism during a period of ten days observation did not ferment dextrose, lactose, mannite, saccharose, arabinose, xylose, glycerine, maltose, or inulin. It reduced nitrates but did not form indol, nor liquefy gelatin nor form H_2S. It is possible that it would have produced H_2S if tested immediately after isolation, but it had been subcultured several times before further studies were made. In regard to the test for H_2S, Topley and Wilson say, "The test should therefore be made as soon after isolation as possible. The interpretation of this test can be summed up by saying that, although failure of a given strain to produce H_2S beyond the first day does not exclude its being of the abortus or American suis type, the continued production of H_2S after the first day affords a strong presumption that it is not of melitensis or Danish suis type." The litmus in milk was not reduced or altered in color.

4. Antisera prepared by immunizing several rabbits with killed suspensions of the organism agglutinated, to approximately the same titre, killed suspensions of the organism itself, Salmonella typhosa and Brucella abortus respectively but did not agglutinate suspensions of the caprine strain or Pasteurella tularensis. The serum did not agglutinate suspensions of B. alkaligenes but agglutinated suspensions of B. gallinarum and B. pullorum in dilutions of 1:50 and 1:100 respectively. It is interesting to report that the patient developed a positive Widal late in the second week.

The results reported in this paper indicate the importance of a flagella stain as well as fermentation reactions of the organism in question when a plump gram negative, motile, slightly motile or apparently non-motile rod is isolated from a patient suspected of having typhoid fever or brucellosis, even though the patient may develop a positive Widal or agglutinins for Brucella abortus.

Discussion

When one reviews the prodromal symptoms, the slow pulse in respect to the temperature, the leukopenia and blood culture yielding a gram negative rod that was agglutinated by anti-typhoid immune serum, one can understand why a physician might make a diagnosis of typhoid fever. He might know that non-motile strains of Salmonella typhosa have been described. On the other hand, if he had suspected brucellosis because the organism was a plump, apparently non-motile rod and because an atypical strain may show growth within 48 hours and may not require CO_2 and had requested an agglutination test using anti-Brucella abortus serum, he would have made a

The author wishes to express his thanks to Dr. C. M. Downs for suggesting a title for his paper.

diagnosis of brucellosis. If the physician had, before making a definite diagnosis, requested a flagella stain, he would have found, as did the author, that the organism differed from both Salmonella typhosa and all of the brucella strains, in that it is monotrichous, whereas, S. typhosa is peritrichous and all of the brucella strains are atrichous. If the physician, in cases like this, would request the technician to determine whether the organism in question ferments dextrose and other substances mentioned in paragraph three above, he would discover that it resembled Brucella abortus in that it does not produce acid in any of the fermentable substances listed.

While the clinical course of this case varied some-

PLATE I

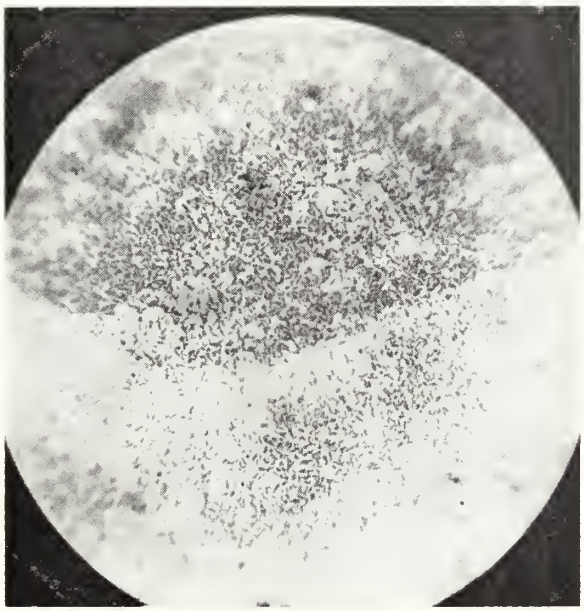

Fig. A. Morphology Butyrous, Smooth Colony Organism.

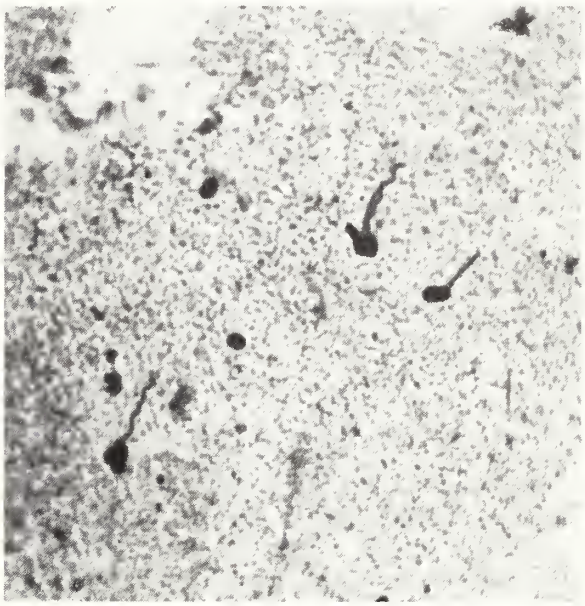

Fig. B. Single Polar Flagellum.

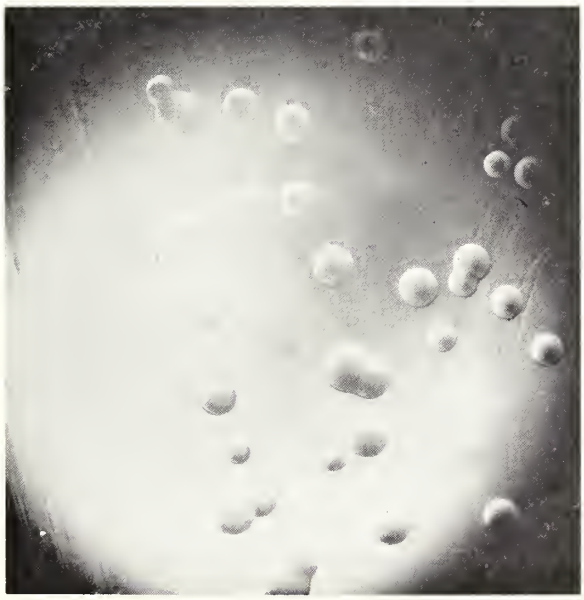

Fig. C. Butyrous Smooth Colony.

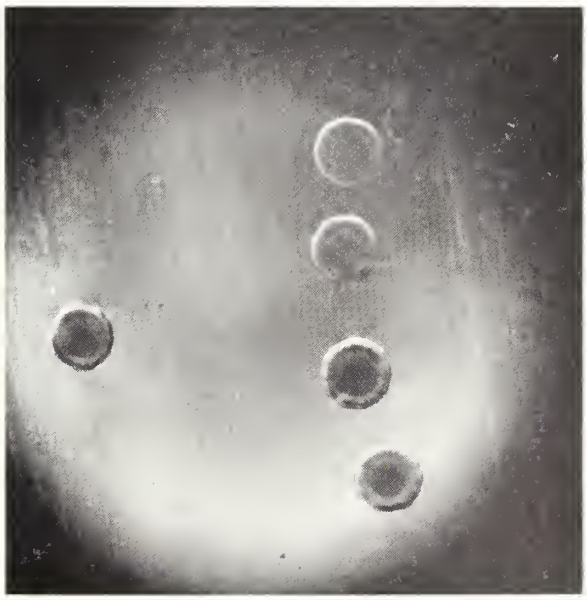

Fig. D. Rough Colony.

what from that of brucellosis in that the patient had a normal temperature after the fourth week, had no relapses during the following year and had no complication, it nevertheless resembled many atypical cases of brucellosis as well as typhoid fever. In regard to cases of this kind, Hardy, et al., state that:

"In the diagnosis of undulant fever, due consideration must be given to the occurrence of atypical forms. These infections may closely simulate other diseases, and an accurate diagnosis is then dependent upon laboratory findings. Atypical cases, selected from our series, are presented in Appendix C. A study of these case histories will reveal that undulant fever may present the clinical manifestations of typhoid fever, tuberculosis, bronchopneumonia, meningitis, cystitis, 'rheumatism,' and various surgical conditions."

The organism in question grows more rapidly than any of the typical brucella strains. Because of the presence of a single polar flagellum the organism can not be classed under the genus Brucella, and because of the bizarre antigenic factors present in it, it is difficult to give this organism a species name. So for the present, the author is permitting it to be listed as, "An unidentified motile or an apparent non-motile monotrichous gram negative rod."

A culture of the organism was turned over to the custodian of our stock cultures for lyophilizing so that future studies might be made on it when the author returned from Indonesia. Unfortunately, the organism was not successfully lyophilized and upon returning to America the author found the culture was lost. The author believes that the reader will not find this organism in the literature since he has surveyed the literature without finding a description of it. It is possible that some strains of this organism that might be isolated in the future may show either slight or definite motility.

It is hoped that this report will alert the physicians of Kansas as well as elsewhere to carefully check on cases such as have been described in this paper, and that a pure culture of the organism may be isolated and studied further so that a proper species name can be given it.

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For additional references on Brucellosis the reader is referred to papers by Borts (1945), Spink (1948), and Sherwood, et al. (1950).

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Accurate Dosages for Narcotics

Errors can occur in the conversion of doses from the apothecary to the metric system. The routine use of the official (since 1943) metric system should eliminate the problems caused by the troublesome arithmetic of dividing fractions. In preparing the small doses of opiates appropriate for infants and children, it is well that instruction be given in the proper method of dilution of the larger size tablets so that the proper dose can be given in an accurately measurable volume of ½ to 1 cc. All possible care should be taken in the ordering of narcotics to make the orders clear to those who will be administering these potent agents. When patients show signs of undue degrees of depression from normal doses of drugs, or when accidental overdosage . . . produces severe depression of respiration or circulation, then the use of the opiate antagonists will be of great assistance in treating this complication.—Betty J. Bamforth, M.D., Accidental Overdosage of Morphine Used as Preanesthetic Medication, *Wisconsin Medical Journal,* April, 1959.

Not Four Years, But Forty

A Look at KUMC's Postgraduate Medical Education

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To create the proper setting for my comments, I want to give you a word description of my location. I am speaking from Kansas City, Kansas. Kansas is one of the 50 states of the United States and geographically is interesting because it is exactly in the center of the United States. From here, the distance is at least 1,500 miles to either ocean, to Canada, or to Mexico. To further visualize my location, think in terms of a large rectangle, laid on its side. This is the shape of this state, rigid, Geometric lines on all four sides. Only in the uppermost, northeast corner is the rectangle broken and here the Missouri River forms a small fragment of the border. Perhaps tonight you may look at a map and identify for yourself this central location of Kansas, and its strange, man made shape, with but a small border formed by a natural water boundary.

Kansas City, a city of more than 100,000 people, is located on the banks of the Missouri River, high in the northeast corner of our state.

I have tried carefully to paint this word picture of my location because much of the significance of my story depends upon an understanding of distances and transportation involved.

Kansas is a land of great distances over rolling flat prairie. From here on the edge of the Missouri River, the opposite border is 400 miles away. This is equal to the distance between Amsterdam and Berlin or from Rome to Geneva. One can drive from here to the oblique opposite corner of the state and the distance will be well over 500 miles. The total area of Kansas is 800,000 square miles and the population is 2,000,000. Let me express this in other terms: our area is but slightly smaller than Great Britian—yet our population is no greater than the city of Vienna.

My story, therefore, is to tell you how here in Kansas a medical school has attempted to serve its duty to the citizens of this state. Kansas supports a single medical school. This is the University of Kansas Medical School and it is located here in Kansas City. We graduate 100 physicians each year, a majority of whom practice here in Kansas.

Our medical school curriculum is similar to that of any medical school. However, we have, as a faculty, endorsed a philosophy which departs considerably from the traditional role of a medical school. Traditionally a medical school's purpose has been to provide a program, usually four years in length, which results in the graduation of a doctor of medicine. In addition, schools have offered from one to four years of advanced training. Here in the United States we usually refer to this as the "residency" years and these years are primarily for training in specific areas of medicine: eye, X-ray, heart, etc. These, we call "the specialties." Beyond this, the medical school and its faculty have not felt an obligagation to the physician and it has long been the physician's personal responsibilty to maintain his level of skill, and his knowledge of new advances. Great medical centers of London, Paris, Vienna, Heidelburg, Boston, etc., have offered this experience but only the few could have this advantage and for the average physician, an attempt at "reading the literature" had to provide for his continuing need for new knowledge. Here, then, is the area of which I particularly want to speak: What has been done in the State of Kansas, here in the center of the U. S. A., by a medical school, to offer "continuing" education for the physician.

A simply-told story of the achievements of KUMC in the field of postgraduate medical education. First presented as a lecture for the Voice of America Forum "The Arts and Sciences in Mid-Century America," in April of 1959. Later it was broadcast to Europe, Africa, Russia, the Near and Far East, and South Asia.

We have identified our program with the motto, "Not 4 years but 40" and this well describes our concept: namely, that a student cannot possibly grasp the whole of medicine in four years. That there is no "whole" of medicine but instead a rapidly moving, changing host of information and to be superbly informed about the medicine of 1959—would leave you but illiterate in 1969—unless you, as the physician, had vigorously maintained and augmented your store of new knowledge. We here at the medical school therefore concentrated on providing the stu-

dent with a program which would give him an excellent basic medical education, but beyond this we would try to equip him with the understanding that he was simply changing his status at the end of four years from that of student to physician-student, and that for the full span of his life he must continue the role of student: "Not 4 years but 40." The medical school, to meet its share of this responsibility, would provide faculty and facilities. This form of education of the physician has become identified as "Postgraduate Medical Education" or "Continuation Education."

Here in Kansas, we have made "continuation education" of our graduates a major obligation of the faculty. In these past ten years we have gradually built and strengthened this program until it is the largest such effort in the United States. Here in Kansas, 1,500 miles from the borders of our country, come more physicians each year, for Postgraduate training, than to any other medical facility in the United States. In the last eight years, 25,000 medical people have been here. To fully document our claim of "continuing education," of the 1,800 physicians of Kansas, this year more than 1,200 will have attended a course offered by this medical school.

How have we been able to interest the physician in this program? First of all, we try, as I indicated earlier, to do this during his medical school days. We try to install a basic philosophy of obligation to maintain his personal standards. Upon his graduation, we make readily available to him well organized programs here at the campus. We have constructed a large, comfortable auditorium. We have provided hotel rooms. Internationally known guest speakers are invited. In the past eight years 244 such major programs were offered here on the campus.

In addition, because of the large area of this state and its relatively small population, there are many rural areas in which the physician is isolated not only by distance, but isolated because he cannot leave his responsibility. In many areas, a single physician provides the only medical care and he cannot leave his patients readily or for a period of time.

We here at the school have therefore tried to bring to the physicians of the rural areas of Kansas readily available medical education. We have called this effort our "circuit courses" and by this term we mean that our faculty, in groups of four, tours the state by automobile for periods of one week each. Twenty-five such tours, each one week long, take place each year. Measured differently, this means that the faculty of this school, 100 strong, is out in the state, making available, at the local level, medical education.

Each circuit encompasses from four to six small towns and at each of these towns, the physicians from the surrounding area gather for a day of instruction and discussion. These groups gather between 30 and 50 physicians and the total enrollment of the entire "circuit course" effort is approximately 450 doctors.

To detail this "circuit course" concept further each year, approximately 25 per cent of the doctors of our state participate in 25 hours of medical education, which is offered in their own locality by members of the medical school faculty. Well over 25,000 miles of traveling is required to carry this program from here on the shores of the Missouri River out over our state.

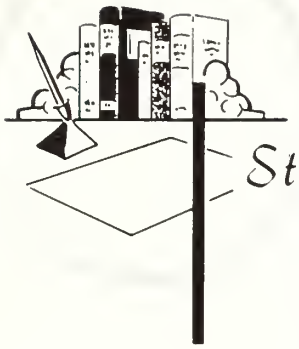
We are now into our 10th year of this full effort. The original philosophy that a medical school must assume an obligation beyond its traditional limits has proved good. Here in Kansas we believe we have brought to life the spirit of "Not 4 years but 40." The graduates of our school continue to be students of the University. The asumption of the role of regional responsibility by the school has been a major departure from the pattern of American medical education. We believe we may have been partially responsible for a new social concept in the American health education system. The other states of the union have embarked upon similar efforts and postgraduate, continuing medical education as a medical school responsibility has become a major force in the health welfare of our people.

Before closing, I want to describe one other phase of this program. As I have indicated before, we are the only medical school in this state. We are supported by the citizens of this state for the purpose of providing physicians for this area. We have at least 1,000,000 of our population distributed in truly rural areas. To assure that our students are familiar with this facet of Kansas life, we require every medical student to leave the campus for a five week period of this fourth year and go out into a community of less than 2,500 people and live in the home of a general practitioner. Here he functions as a student, but also as a stimulus. The physician helps the student by demonstrating to him the actual practice of medicine. The student sees patients not as individuals in impersonal hospital beds, but in his family and home surroundings. The patient is seen as a whole. The student gains an understanding of the physician's role in a community and an appreciation of the complexities and harassments of the practice of medicine.

However, the student also teaches. He brings to the physician fresh ideas of modern factual changes. He is closer to his years of biochemistry, physiology, and anatomy, and he makes the older man think of the reasons "why." Finally, he acts as a stimulus to the physician to seek out further medical education. The student learns—but he also stimulates.

Much of what I have said will seem relevant to

(Continued on page 555)



Student
THESIS

Malignant Carcinoid Tumors

CHARLES H. KIRKPATRICK, M.D., *Chicago*

The purpose of this paper is to discuss the problems in diagnosis and management of malignant carcinoid tumors, as well as the mechanisms producing the clinical picture. A previously unreported case with biochemical studies is also presented.

The name "carcinoid" was first given to these controversial tumors in 1907 by Oberndorfer who emphasized their benignancy. The parent cell was identified as the Kulshitsky cell of the crypts of Lieberkühn by Masson who demonstrated its argentophillic property. These tumors were generally considered to be benign, but in the 1930's several cases of metastasizing carcinoids were reported. In 1952, a case of malignant carcinoid with cutaneous cyanosis, pulmonary valvular stenosis and tricupsid insufficiency was reported by Thorsen, Biorck, and Axen, and the possibility of a symptom complex was suggested during the following year by Isler and Hedinger. An important contribution was the extraction of serotonin from the tissue of a malignant carcinoid in 1953. In 1954, Thorsen, Biorck, Bjorkman, and Waldenstrom suggested that the entire clinical picture was the result of the effect of serotonin. They reported 16 cases of metastasizing carcinoid tumors with associated diarrhea, asthmatic episodes, cyanosis, and flushing of the skin and valvular lesions of the right side of the heart. This symptom complex has subsequently been named the Thorsen Syndrome.

This is one of a group of theses written by Fourth year students at the University of Kansas School of Medicine, selected for publication by the Editorial Board from a group judged to be best by the faculty at the school. Dr. Kirkpatrick is now at the University of Illinois Research and Educational Hospital, Chicago, Illinois.

Serotonin's Role

Serotonin has also been suspected to have a role in hypertension and blood clotting because of its vasoconstrictive property. It is also known that this property is decreased by passage of the blood through the lungs. In 1950, mono-amine oxidase was found in the pulmonary vascular bed and identified as the enzyme in the degradation of serotonin to 5- hydroxyindolacetic acid. Serotonin is formed in the human body by the addition of a hydroxyl group to the 5- position of tryptophan in the liver. This compound is then decarboxylated to serotonin in the gut wall, liver, kidney, and probably in the brain. The amount of serotonin in the blood is difficult to determine because it is absorbed on platelets. However, it has been estimated as 0.1-0.3 micrograms per milliliter of serum in normal persons and 0.6-3.0 micrograms per milliliter in patients with the Thorsen Syndrome.

Case Report

L. L. (KUMC 56-14865), a 59-year-old white male, was admitted to the Kansas University Medical Center for the first time on November 3, with a chief complaint of pain in the right lower chest and upper abdomen of four years duration. The pain was aggravated by deep breathing and changing position, but had no direct relationship to meals. During the two years prior to admission, he had become anorectic, weak, frequently nauseated and had lost 20 pounds. One year before admission he developed orthopnea which became so severe that he slept in a sitting position. Nine days before admission, 1,500 cc. of green-

ish-yellow fluid was removed from his right pleural space.

He had a chronic, non-productive cough, but denied hemoptysis, chills, fever, night sweats, exertional dyspnea, palpitation, or ankle edema. He had smoked one to two packages of cigarettes daily for thirty-five years. Several of his relatives had died from "cancers."

Physical examination revealed a chronically ill, cachectic white male weighing 116 pounds. The head, eyes, ears, nose, mouth, throat, and neck were essentially normal. The movements of the right chest and vocal and tactile fremitus were decreased below the right seventh rib posteriorly. The percussion note was dull and the breath sounds were diminished to absent below this level. The blood pressure was 100 mm. Hg. systolic and 80 mm. Hg. diastolic and the pulse was 84 and regular. The heart was not enlarged and no murmurs or thrills were present. Examination of the abdomen was difficult because of the tight musculature and the right upper quadrant tenderness. The bowel sounds were somewhat hyperactive. Rectal examination revealed a firm, non-tender, fixed mass along the anterior rectal wall seven centimeters above the anus. The skin was warm and dry and was noted to have paroxysms of red flushing over the chest, shoulders, and face (Figures 1 and 2). Some of these flushing episodes were accompanied by generalized abdominal cramping.

Laboratory Examination

Laboratory examination showed a moderate leukocytosis, a sedimentation rate of 21 mm. per hour and a slightly abnormal glucose tolerance test. Other blood chemistries and liver function tests were within normal limits. An electrocardiogram was normal. Intravenous pyelograms and an upper gastrointestinal series were normal. Chest films showed fluid in both bases. A barium enema showed narrowing of the ascending colon with incomplete filling of the cecum (Figure 3).

During the first two days of hospitalization, 1,700 cc. of clear yellow fluid was removed from the right pleural space. Culture of the fluid for bacteria, acid-fast bacilli, and fungi was negative. Cytologic examination revealed numerous mesothelial cells (Class II) and one clump of malignant cells (Class V).

On the tenth hospital day an exploratory laparotomy was done. A 2.0 x 2.5 x 3.5 cm. tumor mass was found in the wall of the upper cecum projecting into the lumen and into the adjacent mesentery. There were numerous firm lymph nodes in the mesentery, mesoappendix, and along the aorta and a single, firm nodule in the liver. Microscopic diagnosis was malignant carcinoid of the cecum with invasion of perineural and perivascular lymphatics and spread to regional nodes (Figure 4).

The postoperative course was uneventful. The

Figure 1. Normal skin coloration of upper abdomen of patient with carcinoid.

urine was collected during eight, 24-hour periods and examined for its 5- hydroxyindolacetic acid content. A course of 28 mgm. of mechlorethamine was given during a four day interval.

The patient is being followed by his local physician and has lost 17 pounds since leaving the hospital. He has noted an increase in the skin flushing and has developed intermittent diarrhea and constipation. Fluoroscopy of the chest showed increased prominence of the pulmonary outflow tract and fluid collecting in the right chest. No murmurs were heard.

TABLE 1

RESULTS OF 24-HOUR URINE 5- HYDROXYINDOLACETIC ACID DETERMINATIONS

Period Ending	Nov. 22	23	25	26	28	29	30	Dec. 1
Mgms. of 5- HIAA	29	37	30	22	14	24	26	30
Medication	—	—	HN_2	HN_2	HN_2	—	—	–

Method

Aliquots of the 24-hour urine collections were examined for their 5- hydroxyindolacetic acid content on eight occasions using the method of Macfarlane, et al. The urine was extracted with ether and the extract evaporated under vacuum. The residue was taken up in fresh nitrous acid and 1-nitroso-2-naphthol was used as a colorimetric agent. The excess dye was extracted with ethyl acetate. The optical density of the sample was then measured at 540 millimicrons on a Coleman spectrophotometer. A standard curve was prepared using serotonin creatinine sulfate. The normal urinary output of 5- hydroxyindolacetic acid is 2-10 mgm. in 24 hours.

Results

The urinary 5- hydroxyindolacetic acid levels were elevated on all examinations (Table 1). The excretion of this compound was not permanently altered by the treatment with nitrogen mustard. This suggests that this agent had little cytotoxic effect on this slowly growing tumor.

Discussion

There is general agreement that the clinical picture of the Thorsen Syndrome is the result of the large amount of serotonin formed by the tumor cells. All of the signs and symptoms, with the exception of the heart lesions, have been produced experimentally in man and animals by infusions of serotonin.

The mechanism of the cutaneous vascular changes has been studied in detail by Thorsen who correlated them with ballistocardiographic, phonocardiographic, and fluoroscopic findings. He divided the episodes of flushing and cyanosis into three stages.

Figure 2. Skin of upper abdomen during flushing episode. Note the increase in coloration.

Stage I lasts only a few seconds and is the beginning of the flush with increasing warmth and redness of the skin due to the dilatation of the small arterioles and capillaries. This is associated with weak cardiac pulsations, decreased phonocardiographic sounds and ballistocardiographic amplitudes, supposedly the result of decreased cardiac output and venous return.

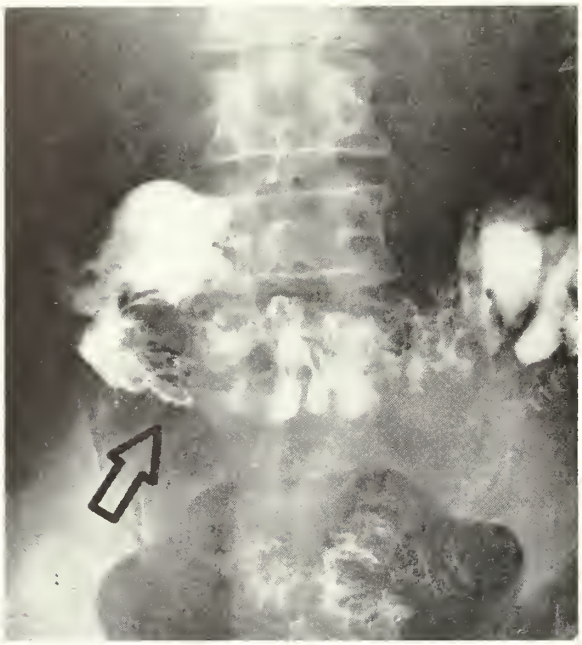


Figure 3. Barium enema showing filling defect in the ascending colon and incomplete filling of the cecum.

This is followed by **Stage II,** the stage of flushing, which may last several minutes. The pulse rate is often increased and the pulse pressure widened. Phonocardiographic tones, ballistocardiographic waves, and fluoroscopic pulsations are increased as a result of the increased cardiac output and lowered peripheral resistance. These changes are the result of cutaneous vasodilatation.

The **final stage** is the stage of cyanosis and may co-exist with the flushing stage. The cyanotic skin is cold because of the pooling of the blood in the dilated capillaries distal to the constricted arterioles. The peripheral pulses, ballistocardiographic waves, and phonocardiographic tones are again diminished. The systemic blood pressure is sometimes elevated.

Similar vascular effects have been demonstrated by Roddie, et al., by infusing serotonin into the brachial artery of humans, and Rudolph and Paul who administered the drug to dogs over prolonged periods through an indwelling catheter in the right atrium.

The bronchoconstrictive episodes and the abdominal cramping with borborygmi and diarrhea are assumed to be the result of stimulation of the smooth muscle of these organs. This has been demonstrated with in vitro preparations of animal uterus and colon. This property of serotonin may be important in the regulation of smooth muscle tone, especially in peristalis and the control of blood flow to various organs.

The lesions of the heart show sclerosis of the endocardium and later progress to stenosis of the pulmonary and tricuspid valves. The fibrous deposit is upon the surface of the valve with fusion at the commissures, but the underlying tissue is unchanged except for the presence of large numbers of mast cells. The valvular lesions have not been produced experimentally and there has been much speculation concerning their limitation to the right side of the heart. Goble, Hay, and Sandler collected simultaneous blood samples from the pulmonary and brachial arteries of a patient with carcinoid and found 66 per cent decrease in the blood serotonin after passage through the lungs. These findings have not been verified in a similar study by Sjoerdsma, Weissbach, Udenfriend, and Terry. It has been suggested that the endocardial fibrosis may be the result of repeated dilatation of the right ventricle during the flushing episodes.

Because serotonin is produced from tryptophan, it has been suggested that a deficiency of niacin may result in a patient with a malignant carcinoid. Studies with C^{14}- labeled tryptophan have shown as much as 60 per cent of the dietary tryptophan may be converted into serotonin in these patients but the normal person uses only three per cent. The plasma tryptophan level and the urinary excretion of N′- methylnicotinamide is also decreased in some patients with carcinoid. Other dietary deficiencies could result from the diarrhea associated with the disease.

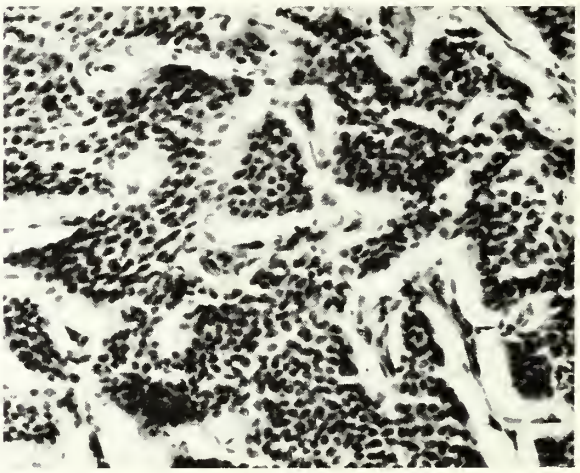


Figure 4. Photomicrograph showing carcinoid tumor in wall of the cecum.

Pathology

The most extensive review of carcinoids has been by MacDonald who collected 356 cases in which he found 98 cases with evidence of local spread and four cases of the Thorsen Syndrome. Carcinoids have been reported arising in the gastrointestinal tract from the stomach to the rectum. The majority of carcinoids do not metastasize, but those arising in the ileum and cecum have the greatest propensity to spread, usually by early local invasion and later to regional nodes and to the liver. It is interesting that patients with the Thorsen Syndrome usually have widespread tumor which may indicate that the clinical picture is related to the mass of functioning tumor tissue. Because most carcinoids are not malignant, the number in the literature greatly outnumbers the cases of the Thorsen Syndrome. However, many cases of the incomplete clinical picture are present. The missing feature is usually the heart lesion, probably because its development is associated with death from congestive failure.

The criteria for malignancy of these slow growing tumors are related to their invasiveness rather than the degree of anaplasia or the number of mitotic figures.

Diagnosis

Recognition of the fully developed picture may not be difficult, but it is important to make the diagnosis before this late stage when palliation is all that may be offered. The most important aid to diagnosis is the realization of a common neoplastic etiology of a group of diverse symptoms. Therefore the disease should be suspected in any patient with diarrhea or asthma of elusive etiology or with a peculiar flushing of the skin.

A simple colorimetric test for the presence of excessive 5- hydroxyindolacetic acid in the urine has been described by Sjoerdsma, Weissbach, and Udenfriend. This will facilitate the early diagnosis in patients with suspected carcinoid tumors. The urinary excretion may be more reliable than blood levels because excessive serotonin may be readily excreted by the kidneys.

Treatment

Presently the best treatment seems to be radical surgery, because the tumor grows slowly and spreads mainly by invasion. Local resection may be adequate if no lymph nodes are involved. Because the severity of the symptoms and signs may be related to the mass of tumor tissue, it would seem advisable to remove as much tissue as possible. Chemotherapy with agents such as nitrogen mustard is probably of little value in these slow growing tumors, although a 13-year survival has been reported. The urinary 5- hydroxyindolacetic acid was not permanently lowered by the administration of nitrogen mustard to our patient. Since the quantitative excretion of 5- hydroxyindolacetic acid may be a measure of the mass of functioning tumor tissue, this may be a valuable laboratory aid in following the spread of the tumor and the effect of therapy.

Some symptomatic relief has been reported with chlorpromazine, but this is not a constant finding. This is supposedly due to a direct antagonism of serotonin within the cells.

Summary

A case of malignant carcinoid tumor with accompanying biochemical studies is presented.

The clinical picture, known as the Thorsen Syndrome, is manifested by diarrhea, asthmatic episodes, paroxysms of flushing, and cyanosis of the skin and valvular stenosis of the tricuspid and pulmonary valves. It is suggested that these signs and symptoms are the result of increased circulating serotonin.

A simplified method of measuring urinary 5- hydroxyindolacetic acid is presnted as an aid to early diagnosis and following the effect of therapy.

The most effective therapy at this time appears to be radical surgery in an attempt to remove as much tumor tissue as possible.

Acknowledgements

I am indebted to Dr. Harold Grady, Kansas University Medical Center, for laboratory facilities and constructive criticism and to Dr. Arnold Greenhouse, Denver, Colo., who is following this patient.

University of Illinois
Research and Educational Hospital
Chicago, Illinois

References may be obtained by writing the JOURNAL OF THE KANSAS MEDICAL SOCIETY, 315 W. 4th Street, Topeka, Kansas.

Not Four Years, But Forty

(Continued from page 550)

you if you will but visualize our method of medical care here in the United States. A sick person seeks out his own choice of physician. The physician selects his own practice. The state establishes certain initial requirements, but after that the physician must monitor his own fund of knowledge. My purpose has been to tell you how one medical school, in one of our 50 states, has attempted to assure the sick person that his physician will be practicing modern, enlightened, ever changing medicine.

Professor and Chairman
Department of Medicine
University of Kansas Medical Center
Kansas City, Kansas

Committee
REPORTS

Defective Hearing in Children

Part II—Defective Hearing in the Preschool Child

C. W. ARMSTRONG, M.D., ***Salina,*** **Editor**

A series of six articles on Defective Hearing in Children are being printed in the *Journal.* These articles were prepared by C. W. Armstrong, M.D., Salina, Kansas, for the Committee on Conservation of Hearing and Speech. The committee members are V. R. Moorman, chairman, C. W. Armstrong, J. A. Budetti, R. A. Draemel, E. L. Gann, C. L. Gray, W. P. McKnight, E. E. Miller, Ruth Montgomery-Short, W. D. Pitman, R. R. Preston, G. O. Proud, R. E. Riederer, and M. J. Ryan.

The titles of the coming articles will be Defective Hearing in the School Age Child, Interpretation of Audiograms, Evaluation of Clinical Data, and Conclusions.

There is an increasing awareness on the part of the layman that there are about five per cent of children of preschool age who have deafness or defective hearing. The result of this awakening is a yearly increase in the number of tots who are brought to the physician with the parent's complaint that the child must not hear because he does not seem to obey. Such cases call for considerable ingenuity in establishing a diagnosis.

At the present when every household has one or more persons aware of "child psychology," the first diagnostic point to be established is the emotional status of the child.

If the child is afraid of the doctor or his nurse, an inquiry as to the cause should be made. Many parents still threaten their children with the doctor instead of taking them to the proverbial woodshed. Worse, psychologically, are the parents who belong to the group which permits "the little dears to express themselves," not realizing that this attitude is only for the toilet training age when suppressed hostility may lead to trouble. On the other hand, there still are physicians who reprehensibly lie to their child patients with the "this won't hurt" routine. The doctor must have the confidence of the child to do a hearing test and he must take time to gain that confidence. When that point is reached, the child is smooth mannered, attentive, and co-operative with the physician. Any testing then done must be simple and as brief as possible because the child's attention span is short. The younger the age the more difficulty the child will have in focusing his attention for long periods of time. For this reason, physical examination

This is the second article in a series of six prepared by the Kansas Medical Society Committee on Conservation of Hearing and Speech and edited by Dr. C. W. Armstrong, Salina. The next article will appear in the January issue of the JOURNAL.

should either follow the hearing test or be done at a different time.

In the initial interview with the parent, the duration, progress, intermittent character, and variability of symptoms are established. It is also desirable to establish any present or past vocalization by the patient. A talking, singing, or humming child hears or has heard.

In dealing with some parents, it is useless to inquire if the child is soothed with music so poor are their powers of observation. With others, a fair amount of information can be obtained, especially concerning reactions to radio or phonograph music. At times the only obtainable clue is the fact that the child has a favorite melody.

Walking children perform rhythmic movements with the hands or feet to music and in some cases will tune a radio fairly well. The older walking child may dance to music.

When the child has been observed only in relation to television, the question arises if the child enjoys television just as well with the sound off.

If the child can be related to his parents' conversation, it may be discovered that he may apparently hear only things that are related to himself such as favorite foods and activities.

The small child, if not emotionally disturbed, can have his hearing established without audiometry. A small bell is tinkled faintly, out of sight, preferably behind the child's head or to one side. If the bell is heard, the child's eyes will usually turn to locate the source of sound. Anyone should be able to get loud and soft effects. A tuning fork is less desirable, if struck, but fairly satisfactory if activated by the fingers without an audible click. This test can also be done using the audiometer as the source of sound, but in any event it should be remembered that the child's communications in the first five or six years of life are tactile, visual, and auditory. If the objective is an auditory test, tactile and visual means of communication should not be allowed to creep into the method employed.

A test which can be used in obtaining an answer to the "deaf or not" question is to separate the mother from the baby's range of visibility for a short period of time and then have her call the child in a soft voice. If this fails, but the child responds when she increases the intensity of her call, it can be assumed that the baby does hear.

In the discussion of hearing evaluation on preschool children and babies, tests based on psychogalvanic conditioned reflexes and sleep encephalogram audiometry need to be mentioned. Such instruments are so expensive that they are maintained only by the larger hearing centers. They cannot be considered a part of the usual testing for children.

Up to about seven years of age, formal audiometry is generally out of the question and only a small amount of audiometry can be done at any one time on children from four to six years of age. If the least is expected and the most obtained in results as to cooperation by the child, a satisfactory situation exists.

The older walking child from four to five years can be induced to play auditory "peeking games" with the audiometer. Binaural headsets do not work too well with preschool children as they object to tight fitting clothing and other similar types of restraint. While no real formal audiometry can be attempted with the younger children, a fair estimate of hearing can be made by having the parent hold the child on the lap while the single ear phone is held near the child's ear. As soon as the child settles down, introduce the 500, 1,000, and 2,000 cycle tones at 15 decibels by switching the tone on and watching the child's eyes. If the eyes do not turn until the intensity is stepped up to 30 decibels or more for any of the tones, the child may be said to have a serious defect of hearing in that ear. However, if the child hears all three tones at 15 decibels or less, the ear thus examined can be rated as satisfactory for ordinary speech.

This procedure can be used with older walking children on the basis of "now I hear it—now I don't hear it." The only manipulation before testing of the ears in the preschool child is in case of obvious otorrhea. Regardless of cause, the offending ear is cleaned gently before testing the hearing. However, hearing testing in the presence of this condition is preferably deferred, where possible, until the otorrhea is controlled. There is no object in permitting expensive equipment to be contaminated with aural discharges.

(To be continued in the next issue of the JOURNAL.*)*

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No home is safe from tuberculosis until all are safe. Help your TB association prevent the spread of this most tragic disease. Your Christmas Seal contribution will help protect your family circle.

FIGHT TB WITH CHRISTMAS SEALS

Maternal Mortality

The patient, a gravida II, para I, died in her rural home in the eighth month of pregnancy. She was not seen by the physician until after death and autopsy was refused.

The patient had always been in good general health and the medical history was not significant. A previous pregnancy had terminated normally and the child was living and well. The patient's husband was working in a distant city and came home on weekends. She lived with her parents.

Her first prenatal visit to the physician was in the fourth lunar month and she was seen monthly until shortly before death. Her prenatal course was uneventful except for a respiratory infection in the patient's final office visit. The physician was called to the home at 2 a.m. at which time the patient was dead and rigor mortis had already set in. The course of events as reconstructed by the physician were as follows:

The day after the office visit, the patient complained of pain in one leg and her mother thought the leg was slightly swollen. On the second evening, she complained of excessive fatigue and went to her room to lie down. Subsequently the parents recalled hearing her cough a time or two but did not disturb her for several hours at which time they found her still lying on the bed with blood stained sputum in her mouth and apparently dead. There was an unexplained delay of two hours before the parents called the physician's home and, learning he was not in, simply told the physician's wife they thought something had happened to the patient and did not leave their number or indicate where they lived. The physician had no choice but to wait for a return call and by the time he reached the home, he was unable to determine anything significant about the affected leg. Since autopsy was refused, he concluded that death was due to a massive embolus secondary to phlebitis.

Committee Opinion

On the basis of the information available, the committee agreed with the diagnosis of pulmonary embolus but felt that in the interest of accuracy the physician might well have made it a coroner's case when the autopsy was refused. No element of negligence was evident other than the patient's own failure to report the pain and condition of the leg.

Classification

Maternal death, indirect obstetric, unavoidable.

One of a series of case reports prepared by the Committee on Maternal Welfare to illustrate the type of study made in each instance of maternal death in Kansas.

Dear Colleague:

The circuit Course which will be presented by the Department of Postgraduate Medicine of the University of Kansas School of Medicine for 1959-1960 will be the finest course of this character ever presented in the opinion of the Postgraduate Study Committee of the Kansas Medical Society. The course will be brought to Kansas physicians at eight strategically located centers easily accessible to all.

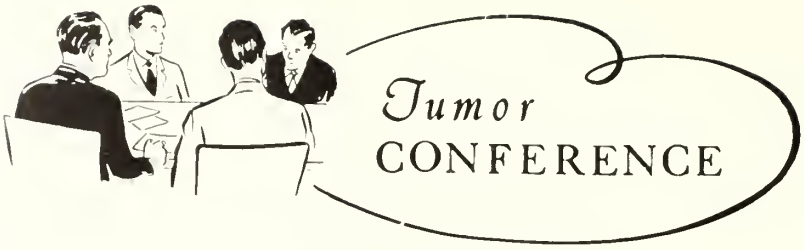
The course is advanced in its concept and brings out some new and stimulating features in Postgraduate medical education. The curriculum is well chosen for general interest. The faculty is composed of men of high caliber and recognized teaching ability. It contains on its roster the names of some of the best known medical educators in this area.

This program has been prepared by the Postgraduate Department with great care and is especially fine. The members of the Kansas Medical Society have a great opportunity in being able to avail themselves of this course and also an opportunity to support it so that it will continue to be a feature in Kansas Postgraduate Medicine.

Sincerely,

William H. Algie, M.D.

Chairman, Postgraduate Study Committee



Lymphoepithelioma of the Tonsil

Edited by CARROLL C. JONES, M.D.

Dr. Boley (Moderator): This patient had a malignant tumor involving the tonsil. It has specific diagnostic, therapeutic and prognostic features that warrant consideration.

Dr. Proud: The patient is an 80-year-old white woman who has a history of mild pain and swelling of the left tonsillar area for a number of weeks. She had difficulty swallowing and speaking because of the size of the mass. She had been treated for tonsillitis without improvement. For the last five years she had tic douloureux involving the left side of her face. The remainder of the history is non-contributory. Examination of the pharynx showed a large mass in the left tonsillar area. The examining physician became suspicious of malignancy, sprayed the patient's throat with cocaine and used the biopsy forceps to obtain small pieces of tissue for histological examination. There were no other findings of clinical significance.

Dr. Boley: Did you photograph the lesion at that time?

Dr. Proud: Pictures were not taken until two days after the patient had received her first irradiation treatment. The mass at that time (Figure 1) filled the tonsillar fossa and extended to near the left margin of the uvula although it was less in size than before irradiation therapy, when it had reached the midline of the pharynx.

Dr. Boley: Will you discuss the general clinical findings in cases such as this, Dr. Proud?

Dr. Proud: Perhaps the greatest problem of tonsillar malignancy is that of making an early diagnosis. This is not unique in the throat of course; the same problem exists elsewhere in the body. Unfortunately malignant disease of the tonsil ordinarily is quite extensive and has been present for a considerable period of time before it is first discovered.

The throat, oddly enough, is a rather insensitive area. The patient does not have pain early. The pain frequently reported with these tumors usually occurs late in the course of the disease. Early in the course the patient is frequently entirely asymptomatic.

The patient usually discovers signs of the malignancy in one of two ways. First, while brushing his teeth he checks his throat in the bathroom mirror, and is amazed to see a huge mass in the tonsillar area. It is usually the large mass that is detected because a small mass in the average bathroom mirror is not easily seen. The patient then becomes alarmed and sees his physician. Second, he discovers signs of cervical metastasis. Quite often the patient's first cognizance of the fact that something is wrong with him is the presence of a mass in the neck. He may

Figure 1. Lymphoepithelioma of the left tonsil bulging from behind the glossopalatine arch outwards to near the uvula at the left.

Cancer teaching activities at the University of Kansas Medical Center are aided by grants from the National Cancer Institute, U. S. Public Health Service, and from the Kansas Division of the American Cancer Society. Dr. Jones is a trainee of the National Cancer Institute.

notice the mass after he tries to put on his shirt and finds the collar too small, or when he finds that his necktie does not lie straight. These signs may take him to his physician who may then find the primary tumor in a search for it.

We might suggest that one should be wary of the peritonsillar abscess or "quinzy" that occurs in the elderly individual. Persons over 65 rarely, if ever, have peritonsillar abscesses. These abscesses usually occur in children and young adults. Lymphoid tissue is practically unresponsive to acute inflammatory reaction after the age of 55. In particular the physician should be wary of the peritonsillar abscess that does not resolve after incision and drainage or antimicrobial therapy or a combination of these two treatments. I recall one elderly individual who had what I considered to be a large peritonsillar abscess. I incised and drained this lesion and the patient was much improved. In 48 hours I spread the lesion again and discharged him, but in about a week he returned with a recurrence of signs and symptoms of a peritonsillar abscess. I incised and drained the lesion again. Then, a more experienced physician pointed out the fact to me this man might have a malignancy of the tonsil. A biopsy revealed lymphoepithelioma of the tonsil. In the tonsillar area as elsewhere in the body, an inflammatory reaction in a neoplastic process may call first attention to the fact that something is wrong.

Whenever a tonsillar mass is found, biopsy should be done. A simple surface biopsy is ordinarily not effective. After preparing the patient with some barbiturate, the surface of the tonsil should be painted with ten to 25 per cent cocaine. A number 11 or number 15 Bard-Parker blade may be used to cut a large and fairly deep section through the mass. Diagnoses of tumors in this area are often difficult for the pathologist to make, and he must have sufficient tissue to study.

Dr. Boley: Dr. Mantz, would you discuss the pathologist's interpretation of this case?

Dr. Mantz: The tissue received in the laboratory consisted of a few fragments of a rather nondescript tissue that apparently represented a number of small bites from the tonsillar area. Histologic examination showed a number of features which I believe are significant. In one place there is necrosis and interruption of the normal appearing surface epithelium with the formation of an ulcer (Figure 2). The parenchymatous area of the tonsil is diffusely cellular. The predominant cell here is relatively large and has a regular and somewhat hyperchromic nucleus uniformly surrounded by a great abundance of a pale cytoplasm (Figure 3). These cells appear to form diffuse sheets of tumor tissue that involve the entire region. Scattered lymphoid elements are present in the tumor. This lesion was diagnosed as lymphoepithelioma of the tonsil.

Figure 2. Biopsy specimen of the tonsillar mass showing the margin of an ulcer and the loss of normal tonsillar architecture. X 40 (Hematoxylin and Eosin).

However, there are features which are disturbing to me. Nowhere in the tissue sections available is there malignant change in the surface epithelium. If this is a lymphoepithelioma then I believe that we have not seen the exact point of origin of the neoplasm. A special silver stain shows that this lesion is abundantly endowed with reticulum. It would be difficult to say whether or not a normal tonsil in an individual of this age should contain this much reticulum, but certainly there is loss of orderly reticulum pattern. Not infrequently, individual cells of this lesion appear to be surrounded by reticulum, in fact, some cells conceivably might be elaborating a reticulum that radiates irregularly into the surrounding stroma. Because of this feature it would be difficult for me to say that this was not a reticulum cell sarcoma. This is an academic point since both lymphoepithelioma and reticulum cell sarcoma should respond in almost precisely the same way to irradiation therapy.

Certainly from the standpoint of pure statistics an ulcerative tumor like this in the tonsillar region is more likely a lymphoepithelioma than a reticulum cell sarcoma. The term lymphoepithelioma, although it is in common usage, may be an incorrect one because the lymphoid tissue that is seen within the tumor is that normally present in the tonsils and

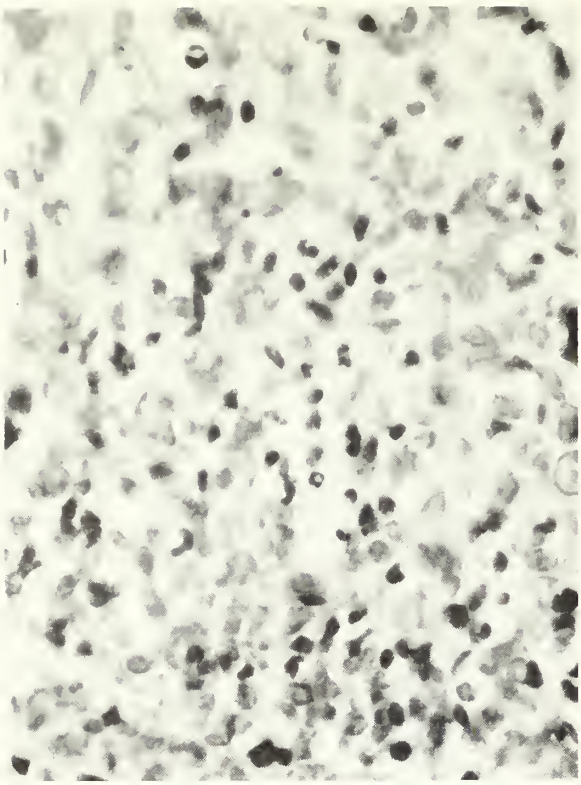


Figure 3. Higher magnification of a parenchymatous area from Figure 2 showing a background of large pale tumor cells. The small dark cells are lymphocytes and polymorphonuclear leukocytes. X 550 (Hematoxylin and Eosin).

it does not participate in the neoplastic process at all. A better term from the standpoint of true pathology is transitional cell carcinoma since these tumors are thought to be poorly differentiated carcinomas that originate in the schneiderian membrane that covers the tonsil.

Dr. Boley: Dr. Tice, will you discuss this case?

Dr. Tice: I would like to discuss in general such diseases as this case represents. I have been interested in these tumors for a long time. Twelve years ago I reported 12 cases of lymphoepithelioma that we had in our files at that time.[1] Before 1904 tumors of the nasopharynx were not commonly reported. Laval reported 25 cases found in the literature at that time and these tumors have been recorded quite often since. In 1929 Ewing reported and classified intra-oral carcinomas. One hundred were of the nasopharynx and 200 were of the tonsil. This same year Gardham reported a group of nasopharyngeal tumors invading the base of the skull. He referred to them as endotheliomas. In 1921 Regaud and Reverchon were impressed with the radiosensitivity of a group of tumors occurring in the nasopharynx and they decided these tumors were not the usual squamous cell carcinomas. These authors applied the name "lympho-épithéliome" to this group. These tumors tended to invade the base of the skull and to involve practically all or any of the cranial nerves. In some instances the tumors were found to be so small that they could not be seen grossly. Some tumors were described in the eustachian canal. In the same year Schmincke working independently reported radiosensitive tumors arising in the same areas and showing similar microscopic patterns. Regaud and Schmincke have their names attached to this tumor since they both described some of its characteristics although their descriptions were not parallel.

In our experience these tumors of the tonsils have been radiosensitive. With this treatment they rapidly are reduced in size and do not tend to metastasize early. Another characteristic of these tumors is that they may metastasize widely and in a bizarre fashion. We have cases in our files in which metastasis occurred over the skin of the chest and back and even to bone.

Usually the first manifestation is a large mass in the neck. In many of these cases the metastases are found before the primary tumor is located. The characteristics of these tumors, in my experience, are 1) that they metastasize widely, 2) that diagnosis is often made from biopsy of a metastasis, 3) that they cause pain, and 4) that the primary site of the tumor may never be found.

Lymphoepitheliomas have certain characteristics that most pathologists agree are sufficient to classify them as separate entities. There is still a tendency for some men to ignore or to overlook the diagnosis. Some pathologists will diagnose primary endothelioma of the lymph nodes in some cases when enlarged nodes are the only visible evidence of disease. This is a dangerous practice, because usually there is a primary tumor in the nasopharynx which has not been found. Within the last two years I corresponded with a radiologist from another state who found an unusual tumor that was diagnosed at his hospital as a lymphoepithelioma. We had a dozen of these cases at that time, so you see that the occurrence of this tumor is not unusual. These tumors have been diagnosed as transitional cell carcinomas, anaplastic carcinomas, Schmincke tumors, schneiderian tumors, endotheliomas, and embryomas, as well as lymphoepitheliomas.

In our series of 12 cases six were dead with the average duration of life of two and one half years after diagnosis. Six were still living over two years after diagnosis was established. Of the six living patients, five had a primary tonsillar tumor and one had a primary nasopharyngeal tumor. We have followed one case for five years and another case for 25 years after diagnosis was established. Both patients are still living. It is interesting to me that these tumors have no respect for age. They may be

seen in young individuals or in old people as illustrated in the present case. Five of our series were between the ages of 16 and 21, and the other seven were between the ages of 48 and 81. Eight patients were females and four were males.

Dr. Boley: How do you treat these tumors, Dr. Tice?

Dr. Tice: Our treatment consists of irradiating the primary tumor and the areas of lymphatic drainage. We would schedule this patient for 4,000 roentgens; 2,000 directed externally and 2,000 directed at the tumor through the intra-oral portal. If there is a prompt response we may cut the total dose to 3,000 roentgens.

Dr. Proud: The tonsil is not the most common site for lymphoepitheliomas; they are more often found in the nasopharynx. Dr. Tice, it is my feeling that the term Schmincke tumor refers to the lymphoepitheliomas of the nasopharynx and not to the lymphoepitheliomas as they occur elsewhere. Am I wrong?

Dr. Tice: It was my impression that the tumor of Schmincke and Regaud and the lymphoepithelioma were synonymous terms.

Dr. Boley: Dr. Mantz, would you clarify this point?

Dr. Mantz: These two gentlemen working separately and at about the same time described tumors of the nasopharynx that were highly similar. Regaud described a malignant lesion that was composed of spindle-shaped cells that tended to occur in irregular cords, forming a mosaic appearance throughout the tumor. On the other hand, Schmincke described a tumor in which the cells were large and pale, and tended to occur in sheets rather than in irregular cords. If a lymphoepithelioma, our case falls into the Schmincke variety rather than the Regaud type. There is only this small histologic difference between the two types. There is no difference between them in their gross clinical behavior or in their prognosis.

Dr. Tice: We have mentioned the name transitional cell carcinoma, lymphoepithelioma, reticulum cell sarcoma and several others in connection with this tumor of the tonsil. Dr. Mantz, I wonder what you would have called it at your hospital if you had been the first person to see it?

Dr. Mantz: I would not have signed it out with the information currently available. I would want to study it much more before I would commit myself. I am not certain that this tumor had its origin in the surface epithelium where lymphoepitheliomas do have their origins. However, if I were to bet I would probably bet that the tumor was a lymphoepithelioma or transitional cell carcinoma if you prefer that term, but I cannot absolutely exclude reticulum cell sarcoma (which also is not rare tumor of the tonsillar area) from what I have seen of it thus far. I do not say this in an attempt to beg the issue, I merely wish to point out the fact that pathologists have exactly the same type of difficulty arriving at valid conclusions in certain cases as do clinicians.

Dr. Friesen: I had always though that the host tissue, or the interstitial tissue participated in the neoplastic process. I would like to use for example the scirrhous type adenocarcinoma of the breast. In this tumor the interstitial tissue appears to participate in the neoplastic process so that most of what is seen under microscope is scar tissue rather than adenomatous tissue. Would you consider that this tumor then may actually be a fibrosarcoma rather than an adenocarcinoma of the breast since the fibrous elements predominate?

Dr. Mantz: I would not in any way agree with what you have said. First, I do not agree that stroma participates in the tumor process. I would say that stroma reacts to the tumor, and if one is dealing with a fibrous stroma I think that it is perfectly conceivable that scirrhous carcinoma would result. By the same token, if one is dealing with a tumor that arises in a lymphoid organ, I would think that the lymphoid type of stroma might likewise react to the tumor. My statement that the tumor under discussion today is not fundamentally a lymphoepithelioma is based on the fact that when these lesions metastasize they metastasize purely as carcinoma and do not carry lymphoid elements with them, any more than a scirrhous carcinoma of the breast carries along scirrhous elements when it metastasizes.

Most pathologists now will agree that this tumor called lymphoepithelioma should be called more correctly an anaplastic carcinoma or a transitional cell carcinoma since this is what it appears to be.

Dr. Boley: In summing up, lymphoepitheliomas of the tonsil have been discussed in regard to diagnosis, specific therapy, and the prognosis. These are very radiosensitive tumors. With early detection and adequate irradiation therapy their prognosis is often more favorable than the older literature seems to indicate.

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The President's Message

DEAR DOCTOR:

Preparation of this monthly letter and the selection of material to be discussed is sometimes an onerous task, but December does not present such a difficult choice.

This month contains within it the season loved by both old and young, not because of the physical exchanging of gifts with our family and friends, but rather due to the deep spiritual awakening that all of us feel at the anniversary of the birth of Christ. Beautiful music, colorful decorations and lighting, sentimental reunions with families and friends, visits to the scenes of our childhood, the gay social season, all contribute to the delight of Christmas, but the deeper meaning of this Day must not escape us. This is a time for thoughtful meditation and rededication to the Christian ideals which have made our nation great today.

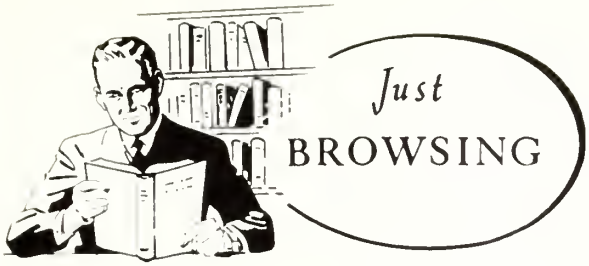
May we always conduct ourselves in such a manner as to merit God's blessing.

I want to take this opportunity to express to each of you my best wishes for a Merry Christmas and a Happy New Year!

Fraternally,

Glenn R Peters M.D.

President



". . . Previous to the promulgation of the germ theory there was no known disease whose cause was so completely shrouded in mystery as this [cholera—Ed.]. Now there are few, if any, with sufficient termerity to deny the truth of its animalcule origin. It has been thoroughly and scientifically demonstrated that there is pervading all animal and vegetable nature an infinitesimal organism, occupying in large numbers every fluid and tissue which has for its functions the building up, the nourishing, and repairing the anatomical structure, which affords it a parasitical abode. . . . These physio-vita. . . . are at all times essential to the normal condition of the corporeal system. They are the nitrogenous carriers . . . are conservative, with intricate effective powers to preserve the normal integrity of all living beings . . . select and apportion nutriment as well as act as sentinels, offering at any time destructive opposition to any external toxic innovation. It is with these physioderms that the physician has to do, as when they are insufficient in number or inefficient in function, his professional services are required, but when they are normal and robust themselves, their tenement, the man, is in health. . . .

"But there is a force in the external world antagonistic, destructive to the vegetable as to the animal organism—a pathoderm, a living microscopic organism, existing throughout the universe, dwelling in the atmosphere and water, swimming in shoals and schools, seeking actively for food as does the larger, nobler man. They destroy all living things for the purpose of gratifying their own appetite and maintaining their physical nourishment. These pathoderms, with varied inherent power and propensity, are myriads in the atmosphere and dwell 500,000,000 in a drop of impure water. They are the materies morbi, the zymosis, the contagium of the books. Under the name of micro-organisms, bacteria, vibriones, microbes, spirilis and other designations, they are now occupying almost the exclusive attention of the scientific medical workers. . . . It is now decided that these pathoderms enter the stomach with food or water, and finding a suitable soil, deposit their germs in large numbers, which after incubating for two, three, or four days, fructify and impart their toxic influence in one of two ways, either by their mechanical or traumatic irritation of the secreting glands of the villi, causing them to excrete an abnormal quantity of serum, or by emitting a poison which, being absorbed into the circulation, destroys natural function. In either case function is rapidly perverted to such an extent that normal action is destroyed in every fluid and tissue. The comma pathoderm having been found in large numbers uniformly in the discharges, and in all cases the primary symptoms of the disease being irritation of the mucous membrane of the stomach and bowels, it is but logical to conclude that the alimentary canal is the field of its initiative action and that we are justified in exerting our therapeutical efforts in that direction. . . .

"In the before-mentioned 7,000 cases [an exhaustive study of the 1873 epidemic—Ed.] probably the only treatment shown to be worthy of trial is the acid treatment, not only because of the report of 8 per cent motality [compared with 50 per cent by all other methods—Ed.], but as it is shown to be a successful prophylactic, and from experiments made by scientists, it is probable that the pathoderm cannot exist or fructify in an acid element, and that it requires an alkaline medium for its generation. If this plausible statement proves to be correct, then it would seem only requisite to decide upon the appropriate acid and the proper administration of it, to find a true specific or germicide. . . . Up to the present day it is theoretically the only tenable therapeusis worthy of the attention of the progressive physician.

". . . It would at least seem to be imperative on all practitioners at the onset of an epidemic, to advise their patrons who may be exposed to it, to at once commence the use of fifteen drops of dilute sulphuric acid, or the old invaluable elixir vitriol, three times a day. Opium, so clearly indicated by the symptoms in this disease, both as an astringent and anodyne, has been ostracised by all writers, except in the premonitory stage. Astringents, both vegetable and mineral, have been abundantly tested and found to be ineffective. Stimulants have, like all other general remedies, been abandoned. . . . "

So wrote W. W. Cochrane, M.D., of Atchison, in his report on "Cholera" to the SOCIETY at its meeting in 1888. Yet a modern text states that the disease is caused by the ingested cholera vibrios "which escape the lethal effect of the gastric juices," and that the average mortality is 50 per cent. Have we gone backwards?—*O.R.C.*

Soliloquy on Christmas

My office is closed. The last patient has been seen, and everyone is gone for the day. House calls and hospital rounds—then home. It is already dark. I am tired and will sit at my desk for just one hour before I go.

The streets are decorated. I hear carols and bells. Lights sparkle in the night. There is a holiday spirit in the air. People hurry. They carry packages. It is cold. Christmas is almost upon us.

Christmas is a time for giving. That's how this all started. Far cry, isn't it, from the lonely woman's labor in that Bethlehem stable. Far cry, too, from the gifts those wise men brought.

What shall I give this year? *Up!* I could give up. Walk out of here and lay my aching bones on a warm Florida beach. Allow my mind the luxury of release from all decisions; my hands the comfort of idleness.

The alternative, as I sit here tonight, seems to offer only the prospect of giving out. Many of my colleagues are older than I. Their practices are larger. They work more hours, too. Why do I feel so depleted today? This prospect of dying on duty, with my boots on, so to speak, is not the heroics I want. Giving out falls short of the Chrismas giving I have in mind, but tonight a sagging spirit would almost welcome even this.

Except to give in is a pretty cowardly defeat. The bells ringing in the street outside my window make happy sounds. They sing of hope, and whoever gives in forfeits the right to listen to their music. Many would be happy to have all of us give in, wouldn't they, now?

There are the peddlers of cultist healing who would like nothing better for Christmas. And the socialists crawling among us, couldn't we make this a great Christmas for them by recanting our faith and giving in to their pressure? Bells would ring then, for sure.

No. Those bells would toll. Every Christmas from now on. And these people shopping in the stores tonight, keyed up in excitement they do not completely understand, would walk with their heads bowed every day of their lives. And most particularly would they be depressed at Christmas.

This I know tonight with an encompassing certainty. The bright Christmas lights on Main Street will be dimmed unless somebody gives enough in the cause of preserving freedom to protect us against those who are trying to steal it away. Unless someone else does this for me, I will lose what I have.

But why should anyone do it for me when I am unwilling to exert this effort for myself? So I guess my stake in Christmas will be to give more of myself in the cause of freedom than before. Nor is this a matter of heroics either.

I happen to enjoy Christmas. I like the eager look on the faces of my children. I like the friendly greetings I receive on the street. And I like the practice of medicine during this season; the hope my patients have; their faith in me. I want these things to continue.

If, except for my effort, this holiday would be the last, I would not be tired tonight at all. I would this minute tell everyone I meet of the dangers we face. I would find the power to show my neighbors the truth. Then we would win, and then there would be more holidays to come, other Christmases in the future, like this one, with bells and lights and carols and people with packages in their arms.

Survey on Fees

The Kansas Relative Value Scale can be useful in many ways, both individually to the practicing physician and to the Society as an organization. It is already well known, but repeated here to assure the membership that the Kansas Relative Value Scale is not a fee schedule, nor is it in any way a mechanism that shall either establish or control charges for medical service on an individual basis. The Relative Scale is not a price index but a complex system of ratios establishing on a point basis the relationship

between any one procedure and all others listed in the manual. For the individual physician, this becomes a guide. For the Society, it is a most valuable instrument when state-wide fee schedules are required.

The Relative Value Scale, however, is a living document. It can never approach perfection, but as it is constantly revised, it will be improved. The House of Delegates, during its 1959 annual session, voted that the Relative Value Scale in Kansas should be annually reviewed. The House of Delegates authorized and directed the Committee on Fee Schedules to exert its effort during the coming year to eliminate inequities in the present scale and to recommend changes to be studied and approved by the House of Delegates in 1960.

The Committee on Fee Schedules, under the chairmanship of W. J. Reals, M.D., of Wichita, is now undertaking to make whatever changes will be needed. The first portion of this effort requires the assistance of the practicing physician in Kansas. The Committee on Fees must have an understanding of usual charges made by the physicians in this state before proper relationships on a relative scale can be established.

In an effort to obtain this information, the Committee on Fee Schedules will conduct a survey in which each member physician will be asked to complete and return a lengthy questionnaire. This will be received in the near future through the mail. It is the urgent hope of your society that each physician will give a small amount of his time and answer this questionnaire. The questionnaire is a pamphlet listing some 500 medical procedures. There will be a blank space after each. It will be completed by filling in the amount normally charged for each procedure the physician expects to perform upon patients of an average family with an average income.

It is most important this fact be understood. The Fee Committee does not want the fees that would be charged where the cost of health care can be of no principal concern to the patient. Neither does the committee want a fee for the family of near indigent status. The committee hopes each doctor will complete those items for all services he expects to perform and that he will list the charge he would expect to collect under what he would consider average circumstances.

These tabulations will be carefully computed with the aid of accurate IBM equipment and help. All information submitted is the property of the Committee on Fee Schedules and will be kept completely confidential. The compilation of this information to be submitted by the membership will, however, make it possible for the committee to establish what is the normal fee for any individual procedure in this state at this time. With that information, the committee will be in the position to give each procedure a relative value on the scale.

Then in May of 1960, a revision of the present Relative Value Scale will become one of the principal items of business for the House of Delegates. The success of this program and the accuracy of the Relative Value Scale in this state will depend almost entirely upon the participation of the practicing physicians and the manner in which the questionnaires will be returned. There is no desire to identify any physician with reference to this survey. There will be no attempt to make this into a fee schedule. The committee is sincerely trying to perform a service which will assist every doctor in this state, but to do so, must have the co-operation of the physicians to arrive at a proper basis for operations. It is for those reasons that your sincere and conscientious co-operation in this project is solicited.

New Assistant Dean Appointed

The Kansas Medical Society would like to take this opportunity to welcome the new assistant dean of the University of Kansas School of Medicine. It was with regret that we said goodbye to our very dear friend, Dr. Vernon E. Wilson, as he moved to the deanship of the University of Missouri School of Medicine in Columbia, Missouri.

Dr. Robert P. Hudson is the newly appointed assistant dean, in charge of student affairs, of the University. Doctor Hudson, who has been on the faculty in the Department of Medicine at KUMC, is a graduate of that school. He received his A.B. degree from Kansas in 1948 and his M.D. in 1952. He spent his internship at St. Luke's Hospital in Kansas City, and his residency in medicine was at the University of Kansas.

Following completion of his residency in 1958, he became an instructor in that department and was promoted to associate in medicine in July 1959.

The 33-year-old physician is a native of Kansas City, Kansas. His new appointment became effective as of the first of this month.

The Society hopes that the fine relationship that it has had with the assistant dean in the past shall continue with Doctor Hudson.

Once again, the Society would like to congratulate Doctor Hudson on his appointment and promise its full support to his office.

There are three degrees of filial piety. The highest is being a credit to our parents, the next is not disgracing them; the lowest is being able simply to support them.—*Confucius*

The Business Side of Medicine

How the Marital Deduction Affects Your Estate

FLOYD F. WEHRENBERG, ***Kansas City, Missouri***

Proper use of the marital deduction is of vital importance in planning your estate. One of the major problems that must be faced by the successful man today is how much of his property will be left after taxes and be available for the benefit of his family. Some years ago a law was passed which makes it possible to reduce greatly your estate taxes by proper qualification of assets. Under this law a deduction is granted from the gross estate equal to the value of property passing to a spouse outright with full power of appointment, but limited to 50 per cent of the estate valuation. This is known as the marital deduction.

For Example

By this means it is possible to save a large sum in taxes thus leaving more funds for your family. On smaller estates the saving is quite substantial. Consider the following example. Doctor Jones' estate is valued at $120,000; use of the marital deduction would provide tax savings as illustrated:

	Marital Deduction	
	USED	NOT USED
Gross Estate	$120,000	$120,000
Specific Exemption	60,000	60,000
Net Estate	$ 60,000	$ 60,000
Less: Marital Deduction One-half of Estate	60,000	—
Amount Subject to Tax	$ —	$ 60,000
Federal Estate Tax	—	9,340
Tax Saving from Marital Deduction	$ 9,340	$ —

Mr. Wehrenberg is Missouri-Kansas manager, Professional Management Midwest, 4010 Washington Street, Kansas City, Missouri.

From this example it can readily be seen that setting up your estate to take advantage of the marital deduction may save substantial taxes on your estate.

On larger estates be careful of a tax trap! Many men leave their entire estate to their wives outright. If the total estate amounts to more than $120,000 this can lead to tax extravagance. You must remember that the marital deduction is limited to one-half of your estate. If you leave your wife more than this, all property in excess of one-half will be taxed in your estate and furthermore, all property passing outright to your wife will again be taxed in her estate. This means that all property left outright to your wife in excess of one-half of the estate will be subject to tax in both your estate and hers.

Careful Planning Can Save

This double taxation can be avoided by proper arrangement of your estate plan. The most prudent plan is to leave her one-half the estate outright in order to qualify her for the maximum marital deduction and the other one-half in such a manner that it will not be taxed a second time in her estate. The second tax can be eliminated by placing the other one-half of your estate in a trust designed to give your wife all the benefits of its use. She could receive the income from the trust and be paid principal amounts for support and medical care. The remainder of the trust will on her death pass untaxed to the beneficiaries originally named in your will. Such a plan could save you thousands of dollars in estate taxes. Consider the following examples of a $200,000 estate.

	100% Outright to Wife	*50% Outright 50% in Trust*
Gross Estate	$200,000	$200,000
Specific Exemption	60,000	60,000
Net Estate	$140,000	$140,000
Marital Deduction	100,000	100,000
Taxable Estate—Doctor	$ 40,000	$ 40,000
Federal Tax	$ 4,800	$ 4,800
Taxable Estate—Mrs.	$195,200	$100,000
Federal Tax	$ 31,000	$ 4,800
Tax Saving by Putting One-Half in Trust	$ —	$ 26,200

As you can see, proper use of this deduction can mean thousands of dollars of additional assets to your heirs. You can also observe that technical errors can be extremely costly. For these reasons it is wise to consult with skilled attorneys in the field of estate planning when setting up your program to insure proper qualification of your property for the purpose of the marital deduction.

New M.D.'s 1958-59

In its annual comprehensive report on all aspects of medical education, the Council on Medical Education and Hospitals of the American Medical Association announced that the 1958-59 graduating class receiving the M.D. degree numbered 6,860, only one less than in 1957-58.

These two classes were the largest except for the 1954-55 year when the class was 6,977. The increase in that term was occasioned by including as graduates the 50 students completing the intern year then required by Stanford University.

According to the council's report, which appeared in the Nov. 14 issue of the JOURNAL of the American Medical Association, 43 medical schools had decreases in the number graduated while 34 schools experienced increases.

Women comprised 5.4 per cent of the graduating class and comprised 5.9 per cent of the Canadian 1958-59 graduating class.

Much of the council's report dealt with educational opportunities for the number of medical students considered adequate to satisfy medical service needs in a vastly growing population.

"To accomplish this task and at the same time maintain high standards of medical education represents a challenge at least as important as any problem facing medicine today," the A.M.A. report said.

The council indicated a need for 10,000 graduates a year from medical schools in the United States by 1975.

"The fundamental issue," the report said, "does not involve the question of which of various studies have resulted in the most accurate estimate of the need for increased numbers of medical school graduates. The basic and urgent concern is that all estimates indicate a need for expansion of educational facilities in medicine in a brief period which far exceeds any expansion of such facilities that has occurred in a similar period during modern times."

Cost of Medical Care

Medical care costs are showing an upward trend. Cost of medical care last year was about 5 per cent higher than in 1957, a percentage increase exceeded only by the rise in transportation costs.

The way in which the patient's medical care dollar is spent has changed radically. For instance, the physician's share has been declining steadily over the past 30 years—from 32:6 cents in 1929 to 24.5 cents in 1957. Contrary to popular belief, the amount spent on drugs has remained stable—at 20.6 cents for the same period. On the other hand, however, the money spent on health insurance and hospital care has practically doubled.

What conditions are most responsible for hospitalization? In short-term hospitals, childbirth ranks first, evidence presented in the publication indicates. In the period from July 1957 to July 1958, childbirth accounted for the highest number of discharges from short-stay hospitals—approximately 3½ million. Upper respiratory infections were second with 1,231,000, and other respiratory infections such as influenza and pneumonia ranked third, with 976,000 discharges.

The number of persons entering hospitals annually has increased nearly 150 per cent in the 20 year period extending from 1937 to 1957. One reason for this increase is the growing number of hospital deliveries. However, during the same period, length of patients' stay in all types of hospitals has decreased 44 per cent. In general hospitals alone, the length of stay has dropped almost 30 per cent—from 12.6 days in 1937 to 8.9 days in 1957.

Health insurance has become increasingly common, with 7 out of every 10 Americans now having some form of health insurance. The most common is protection against hospital expense. Surgical expense is the next most common form of insurance, followed respectively by regular medical expense and major medical expense.

In addition to providing protection against illness, health insurance encourages persons to seek medical care.

Statistics show that persons with health insurance utilize medical services more frequently than those not covered. They visit physicians more often and enter hospitals more frequently each year, but spend much less time in hospitals than those without health insurance.

Washington HIGHLIGHTS

This summary of Washington news is prepared by the A.M.A. Washington Office for distribution to state medical journals.

Medical Education Committee Reports

A special committee of consultants to the Federal government has recommended what was termed an urgent, essential program designed to maintain the present ratio of physicians in a sharply expanding population.

Dr. Leroy E. Burney, Surgeon General of the Public Health Service, gave his personal approval to the recommendations made by his 22-member Consultant Group on Medical Education after about a year's study. But he said he couldn't indicate yet "the extent to which they can be incorporated" in next year's proposals of the Department of Health, Education, and Welfare.

The Consultant Group recommended expansion of existing medical schools and construction of 20 to 24 new ones with Federal help, Federal scholarships for medical students, and greater efforts in the field by states, local communities, foundations, individuals, industry, and voluntary agencies.

The group said the present ratio of 133 doctors of medicine and 8 doctors of osteopathy per 100,000 population is "a minimum essential to protection of the health of the people of the United States."

To maintain this ratio the Group said, "the number of physicians graduated annually by schools of medicine and osteopathy must be increased from the present 7,400 a year to some 11,000 by 1975—an increase of 3,600 graduated.

"To meet the country's need for physicians for medical care, teaching, research and other essential purposes will require an immediate and strenuous program of action by the nation as a whole," the Group's 95-page report stated.

"This program must safeguard and improve the quality of medical education as well as bring about the needed substantial increase in the number of physicians."

The No. 1 recommendation of the Group was for the Federal government to appropriate over the next ten years funds—estimated at about $500 million "on a matching basis to meet construction needs for medical education," including necessary teaching hospitals.

Physician Supply Will Continue to Lag

"The Consultant Group is convinced that the nation's physician supply will continue to lag behind the needs created by increasing population unless the Federal government makes an emergency financing contribution on a matching basis toward the construction of medical school facilities," the report said.

The Group also said research grants to medical schools "should cover full indirect costs so that medical schools are properly reimbursed for the contribution of medical education to medical research."

These two recommendations were in line with American Medical Association positions on the matters.

The Group also urged "more generous public and private support for the basic operations of medical schools." Such support, the report added, "must come from many sources, including state and local appropriations, endowments, gifts and grants, universities, and reimbursement for patient care."

Most of the consultants were physicians or educators. They included Dr. Julian Price of Florence, S. C., a member of the AMA Board of Trustees, and Dr. Edward L. Turner, Director of the AMA Division of Scientific Activities.

Highlights of the Group's Report Included:

- To maintain the present physician-population ratio, the expected 1975 population of 235 million will require a total of 330,000 doctors of medicine and osteopathy.
- There also must be 12,000 entering students in 1971, as against about 7,600 a year now.
- "In a real sense, the needs for physicians cannot be met by numbers alone. They will be met only as an expanded program maintains and enhances the quality of medical education."
- The entry of more physicians into research, industrial medicine and similar activities "has made possible much of the progress of modern medicine." But it also has resulted in "relatively fewer physicians devoting full time to patient care."

Blue Shield

Relations Committees Discuss Utilization

Possibilities of establishing Hospital Utilization Study Committees, the practicality of the No-Fee-Schedule approach to prepayment, district relations committees for adjudication of "usual charge" cases, and Blue Shield programming by area were the key subjects discussed at the fall series of District Blue Shield Relations Committees' meetings just concluded.

• All of the committees have agreed that **Hospital Utilization Study functions** should be carried out in their areas. In most cases, it was agreed that the study would perform a valuable function. The groups felt it would serve as a constant reminder to physicians that every effort should be made to provide completely adequate medical care, but at the same time not to over use drugs and laboratory facilities.

In some districts the committee indicated acceptance of the work but pointed out that the matter should be presented to their county society for approval. In other districts it was felt that the Study Committee function could fit in with already existing medical staff committees. In still other areas, it was requested that the President or Chief of Staff of the hospitals be contacted and ask that special committees be appointed for this purpose.

• **The No-Fee-Schedule approach to prepayment** (discussed in detail in these columns two months ago) was favored in about half of the districts.

Eight of the committees felt that no further work should be done on this type of program. The other eight committees felt that the idea was sufficiently interesting to warrant further study and work by Blue Shield.

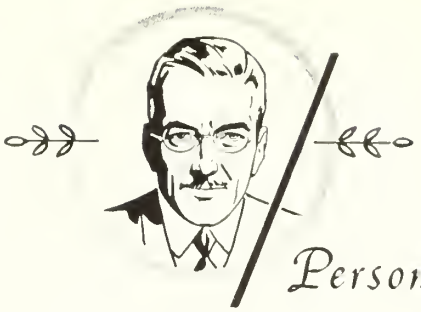
Among the committees responding favorably, a majority opposed a statewide No-Fee-Schedule program. These committees felt that this concept could work successfully in limited geographical areas. (A meeting still is to be scheduled in Councilor District II, which is Wyandotte County.)

Specifically, the committees felt that a given medical area could have a special program of its own based on the No-Fee-Schedule payment arrangement which would be limited to their own area. In most cases, it was felt that area rating would have to be involved in such a program.

• In the discussion concerning **district relations committees as adjudication committees for "usual charge" cases under the Blue Shield Extended Benefits Programs,** all but one agreed that decisions of this nature could best be made at a local level. The one committee which did not agree to this approach made the suggestion that the case first be sent to the District Relations Committee for development of all information concerning the case. This case would then be sent to the State Committee on Blue Shield Relations for final action.

The balance of the committees agreed that the decision could best be made on a local leval and 14 of these 15 committees agreed to assume the responsibility for the program.

• In the discussion of the **resolution which would permit county or regional Medical Societies to develop special Blue Shield contracts in their areas,** all committees were interested in the work being done at present in Lyon County and expressed a desire to obtain additional information concerning Blue Cross-Blue Shield experimental programs at a future date. One committee passed a formal resolution directing its chairman to present a request to the Board of Directors of their county society asking that they proceed to develop a format for a special program of their own.



Personalities—IN KANSAS MEDICINE

At an all day session of the Kansas Chapter of American College of Surgeons held at the Hotel El Dorado recently, **Dr. G. E. Kassebaum** of El Dorado, who has been president-elect the past year, was elected president of the Chapter for the coming year. Also elected at the meeting were **Dr. H. S. O'Donnell** of Ellsworth, president-elect; **Dr. Robert Myres** of Newton, secretary-treasurer; and **Dr. Murray Eddy** of Hays, governor.

Eight of the fifty surgeons who were present from all over Kansas presented a scientific program during the session.

Dr. Fred Doorndos of El Dorado, one of the speakers, and **Dr. Norman Overholser** and **Roger Samuelson,** administrator of the Susanne B. Allen Memorial Hospital, presented the disaster set-up that was functioning at the hospital in El Dorado when the tornado struck in 1958.

Dr. Nathaniel Uhr, internist at the Menninger Foundation, attended the American Heart Association meeting in Philadelphia in October. He also addressed the Vermillion County Medical Society in Danville, Illinois, November 3. His subject was "An Internist Looks at Psychiatry."

Drs. Joseph Satten and **Bernhard Hall** attended the American Psychiatric Association meeting in Detroit recently. Doctor Hall also attended a GAP meeting in New York before returning to Topeka.

Dr. Roy A. Lawson, head of the South-East Kansas T. B. Hospital in Chanute, was re-elected to the Board of Directors of the Kansas Tuberculosis and Health Association at their recent annual meeting.

Over 300 official and voluntary workers in attendance learned that public apathy is the greatest stumbling block in the fight to stop the spread of tuberculosis.

Authorities in the field of tuberculosis control warn that people need to be reminded that T. B. is still the Number 1 infectious disease killer in Kansas.

The newly elected officers of the Kansas Trudeau Society are **James C. Dowell, M.D.,** Lawrence, president; **William Nice, M.D.,** Topeka, president-elect; **Robert Loudon, M.D.,** Chanute, secretary-treasurer.

Dr. Edward Greenwood, Topeka, attended a conference on the Role and Function of Treatment Institutions for Emotionally Disturbed Children, Providence, Rhode Island, recently. He also attended a meeting of the National Advisory Committee of Emma Pendleton Bradley Hospital, of which he is a member, and the Seventh National Conference of Physicians and Schools sponsored by the American Medical Association in Highland Park, Illinois. He also attended the Advisory Council Meeting of Milbank Memorial Fund in New York in November.

Dr. Robert M. Daugherty, who has practiced medicine in Meade for 20 years, has recently joined the staff of the University of Kansas Student Health Service at Watkins Memorial Hospital.

Dr. Daugherty replaces **Dr. Dean L. Peterson,** who is now specializing in anesthesia.

He received both his Bachelor's and Doctor of Medicine degrees from University of Kansas, and practiced in New York for two years before returning to Kansas in 1938.

The University has also announced another appointment to the Health Service staff. **Dr. William J. Ruzicka** will participate in a program of physiological evaluation and in treatment of more than 300 students who have consultation each year in a mental

health clinic. He has been on the psychology staff of Kansas State Teachers' College at Emporia.

Dr. Herbert Modlin presented a paper entitled "Physiological Reactions to Injury" at the Law-Science Institute, Boston, Mass. He also participated in the visiting lecturer series at the University of Texas Law School in Austin this month.

Dr. Karl Menninger spoke on "Hope" at the Menninger Foundation's annual meeting in October. He also spoke to the staff of the Austen Riggs Foundation in Stockbridge, Mass. on "Developments in Topeka." Doctor Karl discussed "How to Secure Management Effectiveness" at a meeting of the National-American Wholesale Grocers' Association in Bermuda in October.

Dr. Mildred R. Passmore, Winfield, was recently appointed County Health Officer of the Crowley County Joint Health Department. She was appointed health officer for the north part of the county and succeeded **Dr. Carroll D. Behrhorst,** also from Winfield.

Doctor Behrhorst is going to Guatemala on a new project in public health, and preventive medicine, sponsored by the Lutheran Church in co-operation with the Guatemala Department of Health.

Emphasis will be placed in the Guatemalan program, Doctor Behrhorst reports, on education and diagnosis rather than therapeutic treatment. A mobile unit will be used to tour the country in the interest of the health of the inhabitants, who are largely Indians, she said.

Dr. L. E. Haughey, Concordia, was recently honored by his colleagues of the St. Joseph Hospital staff at a dinner. Dr. Haughey, who is in his 51st year of medical and surgical practice, graduated from medical school of Washburn University in 1908 and received diplomas from both Washburn and Kansas University, which later took over the medical school of Washburn. Doctor Haughey spent all but a few of his 50 years of practice in Concordia. He has been on the staff of St. Joseph Hospital in Concordia continuously since 1915. He was a partner of **Dr. Hugh St. John,** until Doctor St. John retired eleven years ago, then carried on practice of medicine and surgery alone.

Dr. Frank A. Trump, Ottawa, attended a refresher course put on by the University of Southern California in Hawaii in August. Lectures were held on the Island and aboard ship returning. Mrs. Trump accompanied him.

Dr. Ross Jewell recently left St. John to establish a practice in Bird City. He has set up his practice in a new clinic which was built there only a few years ago.

Dr. G. M. Tice, Kansas City, recently spoke before members of Tuberculosis and Health Association and the Kansas Trudeau Society at the Lassen Hotel in Wichita. He was guest speaker at the evening session of the Society's annual meeting and emphasized the values rather than the dangers of radiation. Other speakers who spoke before the Trudeau Society include **Dr. Ralph I. Canuteson,** of Lawrence, the State Association president and director of Health Services, for the University of Kansas; and **Dr. Martin J. Fitzpatrick,** Kansas City, gave the keynote address.

The meeting was held for physicians interested in chest diseases primarily, but other diseases related to the heart and lungs were discussed.

Dr. Kermit E. Krantz, chairman of the department of obstetrics and gynecology, University of Kansas School of Medicine, recently accepted a check for $5,000 from the Wyeth Laboratories district manager. The presentation took place at the University.

The grant is one of 20 awards totaling $100,000 made annually by the Philadelphia pharmaceutical manufacturing firm to selected medical schools and hospitals. The recipients may use the funds for any purpose they desire.

NEW MEMBERS

The JOURNAL *takes this opportunity to welcome these new members into the Kansas Medical Society.*

John A. Billingsley, Jr., M.D.
614 Huron Building
Kansas City 2, Kansas

William F. Dreyer, M.D.
1031 W. 7th Street
Larned, Kansas

Kermit E. Drantz, M.D.
K.U. Medical Center
39th & Rainbow Blvd.
Kansas City, 12, Kansas

Victor E. Reinking, M.D.
918 West Tenth
Topeka, Kansas

Warren E. Roberts, M.D.
1911 Gage Boulevard
Topeka, Kansas

J. Edward Slankard, M.D.
2121 Minnesota Avenue
Kansas City, Kansas

Frank V. Smith, M.D.
State Office Building
Topeka, Kansas

John S. Welsh, M.D.
Mercy Hospital
Kansas City, Missouri

Book REVIEWS

Anatomy of the Human Body. By Henry Gray. Twenty-seventh Edition (100th year). Edited by Charles Mayo Goss, M.D. 1458 pp. Price $17.50. Lea & Febiger, Philadelphia.

One hundred years ago Henry Gray published his Anatomy of the Human Body. There have been 32 English editions and only 27 American. In these 100 years 572,500 copies have been sold. There have been only nine American editors. The style and spirit of Gray still remain as well as many of the beautiful original drawings done by Dr. H. V. Carter. This has always been one of the favorite books of the medical student and general practitioners alike. Embryology is given in a useful way with general statements as the first chapter, thereafter a short presentation at the beginning of each chapter where embryological material will contribute to the understanding of normal and aberrant morphology. This is especially true of the blood vascular and nervous systems. The nervous system is more than adequately handled for the general practitioner who makes routine neurological examinations.

What has kept Gray's Anatomy alive? No doubt it has been its clarity, to begin with, and insisted upon by all subsequent editors from Dunglison to Goss. Each in his turn have kept abreast of his time, not making the book an encyclopedia but truly an exposition of the science of anatomy. The present edition has excellent references with adequate subject and author indexes.—*P. G. R.*

Surgery of the Prostate. By Henry M. Weyrauch, M.D. 535 pp. Price $15.00. W. B. Saunders Co., Philadelphia, 1959.

This is a 535 page volume written by Henry M. Weyrauch, clinical professor of Urology, Stanford University, School of Medicine.

It is a comprehensive treatise on surgery of the prostate and it is dedicated to the residents, who served with Dr. Weyrauch in the division of Urology. For all Urology residents in training, this book should serve as a fresh, moving, stimulating guide for the management of prostatism.

The evaluation of types of prostatectomy is drawn from current concepts. The description of surgical procedures are detailed, lucid, and exceptionally well illustrated.

For the practicing Urologist this book affords an enjoyable review and is a valuable reference for use in the improvement of surgical technique of prostatectomy.—*E. M. F.*

Surgery of the Foot. By Henri L. DuVries, M.D. 494 pp. Price $12.50. C. V. Mosby Co., St. Louis, Mo., 1959.

Another volume has been added to the vast library of orthopedic surgery, and this newest addition "Surgery of the Foot," will serve as a real adjunct in the treatment of foot problems.

DuVries, who was initially a chiropodist, later received a medical education and became an orthopedic surgeon. Consequently, his approach to orthopedics of the foot is rather unique and possibly more comprehensive than the work of some authors in the past.

A discussion of the many minor, but common and disabling conditions found in the foot, is a subject well chosen. The author prefaces the text by stating that such foot problems as club feet and other extreme disabilities have been adequately discussed in much of the orthopedic literature. There is a plethora of illustrations including radiographic reproductions and sketches of the foot concerning pathology and treatment. After a brief review of the anatomy and its functional relationships, succeeding chapters describe operative principles, the diseases of the foot including infections, burns and freezing, ulcers, especially those associated with diabetes mellitus, tumors of the foot, sundry skin disorders, and affections of synovia and tendons. Finally, there is a section

pertaining to the neuropathies, fractures, and to anomalies.

The book is well written, concise, and is most useful for its abundant bibliography following each chapter.

This first edition is highly recommended to the orthopedic surgeon who encounters foot problems so frequently and to the physician who sees such problems occasionally.—*H. G. K.*

Synopsis of Treatment of Anorectal Diseases. By Stuart T. Ross, M.D., F.A.C.S., F.I.C.S. Cloth $6.50. 240 pp, with 79 illustrations. C. V. Mosby Co., 3209 Washington Blvd., St. Louis 3, Mo.

This book is an easily read, adequately illustrated presentation of diseases in a field frequently bringing the patient to the physician. The author includes only essentials, fulfilling a real need in this day of rapid expansion of medical knowledge and voluminous medical literature. There are no wasted words, even bibliography being omitted. Dr. Ross's experience as a practitioner, writer, teacher and organizer is obvious as one reads this, his latest publication.—*L. A. S.*

Jacopo Berengario da Carpe: A Short Introduction to Anatomy. By L. R. Lind with anatomical notes by Paul G. Roofe. 228 pages. Price $5.00. The University of Chicago Press, Chicago.

This translation of Berengario's 1523 edition of *Isagogae Brevis* fills an important gap between Medieval writings in anatomy and those of Vesalius. It is apparent from reading this work, that Berengario dissected numerous cadavers for he frequently gives rather detailed directions on how to expose to best advantage various structures. He was an astute observer, for the description of morphologic relationships is surprisingly accurate considering the handicaps he must have worked under. Most important he broke away from the long standing tradition of blindly following Galen's teachings. As an example he recognized the brain as being independent of the cranial bones unlike the general belief that it was related to the cranium as the marrow is to bones in general. However, interpretations of function leaves much to be desired.

The text is amply illustrated with reproductions of original figures. The translation from the Latin is skillfully done by Dr. Lind who is no novice in this field. The anatomical notes appearing at the end of the text are of considerable help in clarifying some of Berengario's vague descriptions. This is a book that every student of the history of anatomy and medicine will want to read.—*H. A. M.*

Anatomy of the Human Body. By R. D. Lockhart, M.D., Ch.M., F.R.S.E.; G. F. Hamilton, B.Sc., M.B., Ch.B.; and F. W. Fyfe, M.A., M.B., Ch.B. 697 pp. 965 illustrations. Price $14.00. J. B. Lippincott Company, Philadelphia, 1959.

Recent educational policy related to cutting time spent in basic anatomy has altered to some extent the type of textual material presented to the student of medicine. From Vesalius to the present, pictorial representation of the human body has assumed an ever greater importance and economy in transmitting information to the brain. The purpose of the book under review is stated by the authors "to lighten the burden of the student of anatomy." This is truly what this book can do.

Text material has been halved, without in any way subtracting basic information found in classical texts of anatomy. Illustrations are not only superb but they are given in close association with the clear, crisp text. Embryology is not considered and histology is handled only to the extent that the illustrations and text aid in bridging the gap between what can actually be seen and the view under the microscope.

The nervous system both peripheral and central covers 217 pages which includes the sense organs. The diagrams and illustrations make up for what would ordinarily cover twice this amount. This appears to be quite an adequate treatment of the entire nervous system. The newer knowledge concerning the structure and function of the reticular formation is not given. However the treatment is not less slighted than that found in Neuroanatomy texts of the same date.

Emphasis upon function and clinical application are presented immediately with the anatomy and not relegated to special sections. Illustrations from living material make this even more strikingly appealing. Diagrams are crowded here and there, and in some cases necessarily are small which puts a strain upon the reader to gather all that should be obtained from such a compact presentation. This is evident in guidelines converging on two closely associated structures.

The authors have filled a need in modern anatomical teaching where time must be conserved. They have shortened text material and made available more illustrations which not only adequately presents material but permits the student to conceptualize intricate and complicated anatomy in a functional setting. For the man in practice this text may be a blessing to have a concise, yet adequate treatment of human anatomy. —*P. G. R.*

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